Europass Curriculum Vitae

Personal information

First name(s) / Surname(s)	**Alen Harapin**
Address(es)	Trondheimska 21, 21000 Split, Croatia (Hrvatska)
Telephone(s)	+385 21 303 358 Mobile: +385 91 525 0115
Fax(es)	
E-mail	harapin@gradst.hr
Nationality	Croatian
Date of birth	07/04/1966
Gender	Male

Desired employment / Occupational field

Work experience

Dates	01/07/1991. – today
Occupation or position held	University teacher
Main activities and responsibilities	Education, Science and Professional work
Name and address of employer	University of Split, Faculty of Civil Engineering, Architecture and Geodesy, Matice hrvatske 15, 21000 Split
Type of business or sector	Education

Education and training

Dates	2000
Title of qualification awarded	Ph.D.
Principal subjects/occupational skills covered	Sc. area: Technical science, Sc. field: Civil engineering, Sc. branch: Bearing structures Title: “Numerical simulation of dynamic interaction between fluid and structure”
Name and type of organization providing education and training	University of Split, Faculty of civil engineering and architecture
Level in national or international classification	6. level (ISCED)

Dates	1996
Title of qualification awarded	Master of Science
Principal subjects/occupational skills covered	Sc. area: Technical science, Sc. field: Civil engineering, Sc. branch: Bearing structures Title: “The interaction of fluid and structure with the inclusion of pressure in the cracks”

Name and type of organization providing education and training	University of Split, Faculty of civil engineering and architecture
Level in national or international classification	5. level (ISCED)
Dates	1991
Title of qualification awarded	Engineer
Principal subjects/occupational skills covered	Civil Engineer
Name and type of organization providing education and training	University of Split, Faculty of civil engineering and architecture
Level in national or international classification	5. level (ISCED)

Personal skills and competences

Mother tongue(s): Croatian

Other language(s)

Self-assessment	Understanding				Speaking				Writing	
European level (*)	Listening		Reading		Spoken interaction		Spoken production			
English language	C1	Proficient user	C1	Proficient user	B2	Independent user	B2	Independent user	B2	Independent user

(*) Common European Framework of Reference for Languages

Social skills and competences	Communication skills in verbal and written exchange of ideas and information Presentation skills - participation in international scientific and professional conferences as a presenter Teamwork - the participation in work on several scientific and professional projects
Organizational skills and competences	Years of experience in organizing and teaching (lectures and exercises) at the faculty of civil engineering. The analytical approach of problems' solving. Multi-year member of the Council of the Independent Trade Union of Science and president of DDK in faculty. Currently: Dean of the Faculty.
Technical skills and competences	Years of experience in designing complex engineering structures, as well as technical supervision. Experience in analysis and numerical modeling of different types of structures. Certified Consultant, a member of the Croatian Chamber of Civil Engineers (HKIG). Active work of the Croatian Standards Institute (CSI). Advanced user of specialized computer software packages. Everything acquired during higher education and through work experience.
Computer skills and competences	Advanced user of various software for word processing, spreadsheets and drawings (Microsoft Office, AutoCAD, ...). Knowledge of standard computer applications CMS (content management system web site). Experience in computer programming in programming languages: Fortran, Basic, C.
Artistic skills and competences	Guitar player
Other skills and competences	Skiing, mountain hiking
Driving license	Category B

Additional information

Family status:
(happily) married with two sons, Stjepan (1991.) & Tomislav (1994.)
http://gradst.unist.hr/o-fakultetu/adresar-imenik/agenttype/view/propertyid/1763
http://bib.irb.hr/lista-radova?autor=189684

Annexes

Detailed list of the scientific, educational and professional work

A. BACKGROUND

Education:

Postgraduate education (master of science)

1992-1996 University of Split, Faculty of Civil Engineering

Graduate study

1983-1991 University of Split, Faculty of Civil Engineering

Secondary schools

1982-1983 School center for Civil Engineering, Split, occupation: Technical drawer

1980-1982 School center for Marine Engineering, Split

Primary school

1972-1980 Primary school “Bratstvo Jedinstvo”, Split

Academic titles:

2000. pHD in Civil Engineering

University of Split, Faculty of Civil Engineering, title*: ”Numeric simulation of dynamic interaction between fluid and structure”*

1996 Master of science (M. sc.)

University of Split, Faculty of Civil Engineering, title*: ”Interaction between fluid and structure with the inclusion of pressure in the cracks”*

1991 Civil Engineer

University of Split, Faculty of Civil Engineering

Job functions:

1991-today	University of Split, Faculty of Civil Engineering (later: Faculty of Civil Engineering and Architecture, from 2003., then Faculty of Civil Engineering, Architecture and Geodesy, from 2011.)
1991.-2000.	Assistant on Faculty of Civil Engineering, Department for Structures
2000.-2005.	Assistant lecturer on Faculty of Civil Engineering and Architecture, Department for Structures
2005.-2011.	Associate Professor on Faculty of Civil Engineering, Architecture and Geodesy, Department for Structures
2011.-today	Professor on Faculty of Civil Engineering, Architecture and Geodesy, Department for Structures

Elections in research and teaching positions:

13. June 2001. – Associate researcher

04. July 2001. – Assistant lecturer

09. November 2005. – Associate Professor

20. October 2005. – Researcher in Science field: Civil Engineering

24. May 2006. – Researcher in Science field: Other basic technical sciences

30. June 2011. – Full Professor

03. September 2016. – Full Professor – Tenure position

Last updated: Split, 10 February 2024

B. ACTIVITY

B.1 SCIENTIFIC RESEARCH

List of results of scientific research activities is given in section C.1.

(i) Interest areas

Building construction and materials, continuum mechanics, numerical modeling

(ii) Research Areas

Static analysis of structures

- Modeling of planar and spatial structures (plane stress state, plane-strain state, axisymmetric problems, plates and shells, frame structures and 3D structures), loaded by short and long-term static load;
- Development of adequate models of reinforced concrete short-term static load with the inclusion of dominant nonlinear effects of behavior (cracking of concrete in the tension and the yielding in compression, tensile and shear stiffness of the cracked concrete, nonlinear behavior of reinforcing steel, etc.);
- Development of an adequate model for the involvement of the rheological properties of concrete (creep, shrinkage, aging) under long-term loading;
- Incremental-iterative algorithms for solving nonlinear problems
- Modeling the influence of geometric nonlinearities (large displacements)
- problem of continuum discretization

Dynamic analysis of structures

- Modeling of planar and spatial reinforced concrete structures
- Development of appropriate models of reinforced concrete for dynamic loads
- time integration of equations of motion with explicit, implicit and explicit-implicit solution algorithms
- Eigen values problems

Modeling of fluid-structure interaction

- Modeling the interaction of fluid-structure-soil under conditions of dynamic loading in 2D and 3D problems
- Development of efficient algorithms solutions to problems of coupled fields
- Application of complex nonlinear solutions of individual fields to solve the problem of interaction
- Development of efficient algorithms solutions for eigen values problems of coupled problems
- Develop of model that simulates the appearance of cavitation in fluids

Dimensioning of the composite cross-sections

Calculation of crack width of concrete elements

(iii) Specialty

Modeling of reinforced concrete structures with problems of individual and related fields

(iv) The published research papers

6 Books / Monographs
3 Book chapters
33 Refereed journals that are represented in WoSCC
14 Papers published in journals that are represented in other major bibliographic databases
4 Invited lectures at the symposiums
42 Papers in the Proceedings of the international conference
10 Papers in the Proceedings of the Croatian's conference
3 Other published papers
4 Papers in journals published in cooperation with students

(v) Cited

According to Scopus: 241 cites

According to Google scholar: 553 cites

(vi) Other activity

- Organizer of domestic and international conferences
- Member of editorail board of several Journals

B.2 EDUCATIONAL ACTIVITIES

List of results of educational activities is given in section C.1.

(i) Elections in academic positions

2016 Full Professor, Tenure position for subjects: *Concrete structures I, Concrete structures II* & *Bridges*, Faculty of Civil Engineering, Architecture and Geodesy Split, Associate Professor for subjects *Bridges on* Faculty of Civil Engineering University of Mostar, Bosnia and Herzegovina

2011 Full Professor for subjects: *Concrete structures I, Concrete structures II* & *Bridges*, Faculty of Civil Engineering, Architecture and Geodesy Split, Associate Professor for subjects *Bridges on* Faculty of Civil Engineering University of Mostar, Bosnia and Herzegovina

2005 Associate Professor for subjects: *Concrete structures I, Concrete structures II* & *Bridges*, Faculty of Civil Engineering, Architecture and Geodesy Split, Associate Professor for subjects *Bridges on* Faculty of Civil Engineering University of Mostar, Bosnia and Herzegovina

2001 Assistant lecturer za predmete for subjects: *Concrete structures I, Concrete structures II* & *Bridges*, Faculty of Civil Engineering and Architecture Split, Associate lecturer for subjects *Bridges on* Faculty of Civil Engineering University of Mostar, Bosnia and Herzegovina

1996 Assistant for subjects: *Concrete structures* & *Bridges*, Faculty of Civil Engineering Split

1991 Yunger assistant for subjects: *Concrete structures* & *Bridges*, Faculty of Civil Engineering Split

(ii) Employment

- University of Split, Faculty of Civil Engineering, Architecture and Geodesy
- University of Mostar, Bosnia and Herzegovina, Faculty of Civil Engineering, Architecture and Geodesy

B.3 PROFESSIONAL ACTIVITIES

List of results of profesional activities is given in section C.3.

(i) Status

- Authorized Designer (according to Croatian law, from 1999)
- Authorized Reviewer (according to Croatian law, from 2015)

(ii) Field of work

- designs of structures of different objects (buildings, halls, bridges, tunnels, and various engineering structures, etc.)
- designs of improvement and rehabilitation of structures
- materials: concrete, reinforced concrete, prestressed concrete, steel, wood

(iii) Designes, studies and expertise

In qualification as the responsible (chief) designer made a number of projects, studies and expertise.

(vi) The published proffesional papers

- 9 Papers in journals
- 17 Papers in the Proceedings of the conference

(v) Work in national and professional associations

- The active work of the Croatian Standards Institute (HZN) on the translation and adoption of standards in the field of Civil Engineering

(vi) The developed computer programs

The author or coauthor of more computer programs for numerical analysis and calculation of structures.

B.4 OTHER ACTIVITIES

Vicedean of Faculty of Civil Engineering and Architecture in Split (2008 – 2010 and 2018 – 2021)
Dean of Faculty of Civil Engineering, Architecture and Geodesy in Split (2010 – 2014)
Member of UGIS (Association of Civil Engineers Split)
The editorial board of Građevinar magazine (2011 – danas)
Editorial board of Engineering Modeling magazine (2011 – danas)

C. LIST OF SCIENTIFIC RESULTS, EDUCATIONAL AND PROFESSIONAL ACTIVITIES

C.1 SCIENTIFIC RESEARCH

C.1.1 The published research papers

(i) Books / Monographs

1. **Harapin A.,** Radnić J., Grgić N., Smilović Zulim M., Sunara M., Buzov A., Banović I.: "Osnove betonskih konstrukcija : usklađeno s: HRN EN 1992-1-1:2013/A1:2015", Sveučilište u Splitu, Fakultet građevinarstva, arhitekture i geodezije, 2023. (in Croatian) –

   Harapin A., Radnić J., Grgić N., Smilović Zulim M., Sunara M., Buzov A., Banović I.: "Basic of concrete constructions: harmonized with: HRN EN 1992-1-1:2013/A1 :2015", University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2023 (in Croatian)

   Abstract: The book is primarily intended for students and as such fully covers the material from the course Basic of Concrete Structures at the Undergraduate University Study of Civil Engineering and from the courses Concrete Structures 1 and Concrete Structures 2 at the Undergraduate Vocational Study of Civil Engineering FGAG Split. It also partially refers to the material in the course Concrete Structures 1 and Concrete Construction 2 at the University Graduate Study of Civil Engineering and the material of the Load-bearing Structures 1 course at the University Undergraduate Study of Architecture and Urbanism FGAG Split. The author's intention is not to present the material in detail and in detail, but to present the basics of calculation, dimensioning and shaping of reinforced concrete structures in a clear and concise manner. As it was created over a long period of time, the materials also followed the development of standards for the calculation of concrete structures, from PBAB, through the European preliminary standard, to the latest European standard for concrete: HRN EN 1992-1-1:2013/A1:2015 (EC- 2). The aforementioned norm, valid in the Republic of Croatia and according to which this edition of the book is harmonized, today undoubtedly represents one of the most modern norms in the world for the calculation, dimensioning and design of reinforced concrete structures.

2. Radnić J., Ćubela D., **Harapin A**.: *"Spregnute konstrukcije – Numerički model za analizu pod kratkotrajnim opterećenjem",* Faculty of Civil Engineering and Architecture University of Split, University of Mostar, Faculty of Civil Engineering, 130 str. Split, 2005. (in Croatian) –

   Radnić J., Ćubela D., **Harapin A**.: *" Composite Structures - Numerical model for analyzing under the short-term load",* University of Split, Faculty of Civil Engineering and Architecture, Faculty of Civil Engineering University of Mostar, 130 pages, Split, 2005. (in Croatian)

   Abstract: The book briefly described the basic problems of composite structures, with special emphasis on the coupling of steel and concrete, wood and concrete, and concrete and concrete. Emphasis is placed on developing a numerical model to simulate the plane of composite structures subjected to short-term quiet load. Closely describes the nonlinear material models for simulation of reinforced concrete, structural steel and wood. Adopted contact elements allow the simulation of slip and separation on the surface coupling. To verify the above numerical model and corresponding computer program STACS, the limited experimental tests of some elements of the composite steel-concrete, wood, concrete and concrete-concrete are made.

3. Radnić J., Markota L., **Harapin A**.: *"Raspucavanje betona",* Faculty of Civil Engineering and Architecture University of Split, 117 str. Split, 2005. (in Croatian)

   Radnić J., Markota L., **Harapin A**.:*" Cracking of concrete",* University of Split, Faculty of Civil Engineering and Architecture, 117 pages, Split, 2005. (in Croatian)

   Abstract: *The main aim of the book is the presentation of a numerical model that allows the calculation of adequate width and spacing of cracks of complex classical reinforced, prestressed and composite concrete elements subjected to bending. The sections can be of arbitrary shape and arrangement of reinforcement, with the possibility of the forming (coupling) cross-section in several stages. They are also included effects of creep and shrinkage of concrete.*
   Experimental tests of pure bending and centric force of some concrete elements were carried out to prove the displayed numerical model. The results of the numerical model are also compared with the results of several commonly used engineering calculation procedures, which are summarized.

3. Radnić J., **Harapin A**., Matešan D.: *"Betonske ploče i ljuske – Numerički model za statičku, dinamičku i vremenski ovisnu analizu",* Faculty of Civil Engineering and Architecture University of Split / Institut građevinarstva Hrvatske d.d. Zagreb, 164 str., 2005.

   Radnić J., **Harapin A**., Matešan D.:*" Concrete slabs and shells - numerical model for static, dynamic and time-dependent analysis",* University of Split, Faculty of Civil Engineering and Architecture / Institut IGH d.d., 164 pages, Split, 2005. (in Croatian)

   Abstract: The book summarizes the basics of numerical modeling of plates and shells. The simplification of three-dimensional theory of plates and shells, and deficiencies of Mindlin's plate elements and a simplified shell element are described. It's displayed adopted formulation of the finite element plate and shell, and indicated the basis of analysis with elasto-plastic material model.
   Then, three separate numerical models for nonlinear analysis of reinforced concrete plates and shells are exposed, for: static analysis, dynamic analysis and time-dependent analysis.
   Material and geometric nonlinearity of structure (large displacements) are modelled. Some non-linear effects which are on the most important for behavior of reinforced concrete are simulated. Those effects are: the flow of concrete in the compression, the occurence and development of cracks in the tension, tensile and shear stiffness of the tiny cracks in

concrete, opening and closing of cracks, the nonlinear behavior of reinforcing steel, the effect of strain rate on the behavior of concrete and steel on the impact loads, and rheological effects of concrete (creep, shrinkage and aging) for long term loads.

For the spatial discretization of the system the finite element method (FEM) is used, and for the time discretization finite difference method (FDM) is used. A degenerated curved shell elements, free of shear and membrane locking, with 8 and 9 nodes are used. To enable the changes of geometry - large displacements, updated Lagrange's coordinates of the nodes of the system are used.

4. Radnić J., Matešan D., **Harapin A**.: *"Static Analysis of Concrete Shells",* Monograph, 57 str. Split, 2004. (in English)

   Abstract: This monograph presents a numerical model for the analysis of reinforced concrete slabs and shells subjected to instantaneous static loads. The model is relatively simple and at the same time it includes the dominant nonlinear effects of the reinforced structures behavior, such as: concrete yielding under compression, cracks development in concrete under tension, cracks opening and closing at cyclic load, tensile and shear stiffness of cracked concrete and nonlinear behavior of the reinforcement. A model of geometric nonlinearity includes large displacements and small deformations. The adopted degenerated shell finite element eliminates the negative effect of the so-called shear and membrane "locking". Based on presented numerical model, SALJ computation program has been developed for everyday engineering practice.

5. Radnić J., **Harapin A**.: *"Uporabna naprezanja armiranobetonskih presjeka"*, priručnik za dimenzioniranje, Građevinski fakultet University of Split, 252 str., 1999.

   Radnić J., **Harapin A**.: *"Exploatational stresses of reinforced concrete sections",* University of Split, Faculty of Civil Engineering, 252 pages, Split, 1999. (in Croatian)

   Abstract: The book is a manual with tables for the calculation of strains of rectangular reinforced concrete section loaded with eccentric longitudinal force in the major axis of the section, for cases that are commonly encountered in practice.

(ii) Book chapter

1. Radnić J., Matešan D., **Harapin A.,** Smilović M., Grgić N.: Numerical Model for Static and Dynamic Analysis of Masonry Structures, A. Öchsner et al. (Eds.) (ur.)., Berlin: Springer-Verlag, Str. 1-33, 2012.

   Abstract: Firstly, the main problems of numerical analysis of masonry structures are briefly discussed. After that, a numerical model for static and dynamic analyses of different types of masonry structures (unreinforced, reinforced and confined) is described. The main nonlinear effects of their behaviour are modelled, including various aspects of material nonlinearity, the problems of contact and geometric nonlinearity. It is possible to simulate the soil-structure interaction in a dynamic analysis. The macro and micro models of masonry are considered. The equilibrium equation, discretizations, material models and solution algorithm are presented. Three solved examples illustrate some possibilities of the presented model and the developed software for static and dynamic analyses of different types of masonry structures.

2. Brzović D., Šunjić G., Radnić J., **Harapin A.**: „Numerical Model for Fluid-Structure Coupled Problems under Seismic Load", research monograph: 'Damage and Fracture of Composites Material and Structures', Springer in Germany, (in print)

   Abstract: The chapter in book briefly describes the numerical models for the simulation of fluid-structure coupled problems. The applied models are primarily intended to simulate the fluid-structure dynamic interaction in seismic conditions. The partition scheme of coupled (multi-field) problems is briefly described as the most common approach for the fluid-structure dynamic analysis. Models can simulate the most important effects of plane and spatial structures that are in direct contact with the fluid. Some of models' possibilities are illustrated in numerical analyses of the seismic behavior for four practical examples.

3. Matešan, D., Radnić, J., **Harapin, A.**: Model of Large Displacements in Static Analysis of Shell, Materials with Complex Behaviour, A. Öchsner et al. (Eds.) (ur.)., Berlin: Springer-Verlag, pp 149-163., 2010.

   Abstract: A model of geometric non-linearity in static analysis of a shell, which includes the effects of large displacements and small deformations, is presented. Degenerated curved shell elements were used. The presented numerical model was verified on the results of three experimentally tested very slender steel structures, with elastic behavior of material for all applied loads.

(iii) Scientific papers published in journals that are citated in WoS:

1. Džolan A., Galić M., **Harapin A**.: „*Model for the Simulation of the Time-Dependent State in RC Elements*“, Applied Sciences, 12 (3), 1501-1515, 2022.

   Kratki sažetak rada: The paper presents an upgrade of the previously developed model for nonlinear 3D analysis of concrete structures extended with the possibility of simulation of the long-term effects (shrinkage and creep) under long-term static load. The origin model is based on the so-called multi-surface principle with modified Rankin criterion for dominant tensile influences (appearance and development of cracks) and the modified Mohr-Coulomb criterion for dominant compressive states (yielding and cracking of concrete). The material behaviour is described with elementary material parameters (modulus of elasticity, Poisson's coefficient and uniaxial compressive and tensile strength of concrete) by standard tests. Sufficient accuracy along with a simple and effective description of the very complex behaviour of reinforced concrete structures, make this model advantageous. Creep and shrinkage are based on the procedure given by the fib Model Code 2010 and extended with a special extension for non-linear creeping. Two simple examples show the capabilities of the model, while a good agreement between numerical and experimental results indicates that the developed model can well describe long-term effects in reinforced concrete structures, and that the model is appropriate for standard engineering practice.

2. Sunara M., Gotovac B., Radnic J., **Harapin A**.: „*Numerical analysis of pressures on rigid structures using the smoothed particle hydrodynamics method*“, Scientia Iranica, 28 (3), 1066-1078, 2021.

   Kratki sažetak rada: The paper presents a numerical analysis of hydrodynamic pressures on rigid structures caused by dynamic base excitation. First, the model for the fluid simulation, based on the numerical approach called the Smoothed Particle Hydrodynamics (SPH) method, is presented. Then, the described model is used to calculate the pressures on rigid structures. In the performed analysis, the structures of various geometries (a rectangular tank with vertical sides, rectangular tanks with one inclined side of constant slope and a cylindrical tank) are exposed to simple harmonic horizontal base excitations. The obtained hydrodynamic pressures on the sides of the tanks are compared with analytical and other numerical solutions.

3. Kalajdzisalihovic H, Milasinovic Z., **Harapin A**.: „*Developing a new weir type using the smoothed particle hydrodynamic model*“, Coupled systems mechanics, 10 (6), 491-507, 2021.

   Kratki sažetak rada: The aim of this paper is to conduct a hydrodynamic analysis of fluid flow over different weir types using the analytical solution, the physical model taken from another article, and numericalsimulations through the Smoothed particle hydrodynamic method (SPH) using the compiled DualSPHysics source code. The paper covers the field of real fluid dynamics that includes a description of different proposed types of weirs in various flow regimes and the optimal solution for the most efficiency structure shape. A detailed presentation of the method, the structure and it's characteristics are included. Apart from the single stepped weir, two other weir types are proposed: a Divided type and a Downstream slopped type. All of them are modeled using the SPH method.

4. Džolan A., Kožul M., **Harapin A**., Dragan Ćubela D.: „*Analysis of the concrete shrinkage effects on the real behavior of the spatial concrete and reinforced concrete structures using the thermal analogy*“, Engineering Computations, 2021.

   Kratki sažetak rada: This paper aims to present an approach for the numerical simulation of concrete shrinkage. First, some physical mechanisms of shrinkage are described and then the developed numerical model for the analysis of shrinkage of spatial three-dimensional structures using thermal analogy is presented. Results of the real behavior of structures because of concrete shrinkage using the developed numerical model are compared with the experimental and it is clearly shown that the developed numerical model is an efficient tool in predicting the time-dependent behavior of all concrete structures. In this paper, Fib Model Code 2010 to predict shrinkage deformation of concrete is used, and it was incorporated in the three-dimensional numerical model using the thermal analogy. Mentioned three-dimensional numerical model uses the modified Rankine material law to describe concrete…

5. Šunjić G., Prskalo M., Milašinović Z., **Harapin A**.: „*Simulation of concrete ageing on dams as illustrated by numerical analysis of Jablanica HPP*“, Građevinar, 71 (9), 749-767, 2019.

   Kratki sažetak rada: This paper aims to present an approach for the numerical simulation of concrete shrinkage. First, some physical mechanisms of shrinkage are described and then the developed numerical model for the analysis of shrinkage of spatial three-dimensional structures using thermal analogy is presented. Results of the real behavior of structures because of concrete shrinkage using the developed numerical model are compared with the experimental and it is clearly shown that the developed numerical model is an efficient tool in predicting the time-dependent behavior of all concrete structures. In this paper, Fib Model Code 2010 to predict shrinkage deformation of concrete is used, and it was incorporated in the three-dimensional numerical model using the thermal analogy. Mentioned three-dimensional numerical model uses the modified Rankine material law to describe concrete…

6. Smilović M., Radnic J., **Harapin A**.: „*Shear effect on seismic behaviour of masonry walls*“, Materialwissenschaft und Werkstofftechnik, 50 (5), 565-579, 2019.

   Kratki sažetak rada: The paper presents the numerical model developed for the simulation of the fluid-structure interaction problem. The model is based on the so called "partition scheme", in which the Smoothed Particle Hydrodynamics (SPH) method is used for the fluid and the standard Finite Element Method (FEM), based on shell elements, is used for the structure. Then, the two solvers are coupled to obtain the behaviour of the coupled fluid-structure system. The effects of large displacements and small strains are taken into account in the model for shells. The elasto-plastic material model for the structure (shell), which includes some important nonlinear effects like yielding in compression and tension, is briefly

discussed. Some of the model's possibilities are illustrated in a practical example of a rectangular medium sized fluid tank with rigid and deformable walls under several ground excitations.

7. Mirčevska V., Nastev M., Hristovski V., **Harapin A.,** Nanevska A.: „*Interactive algorithm for geometric modelling double-curvature arch dams"*, Građevinski materijali i konstrukcije, 62 (2), 35-45, 2019.

   Kratki sažetak rada: A rapid and efficient algorithm for interactive geometric modelling of arch dams is presented. It combines the advantages of the traditional geometricdesign with innovative computational capabilities offering simple procedures for otherwise complex process of laying out double-curvature arch dam-reservoir coupled systems. The key parameters taken into account are: terrain topography, shape and thickness of crown cantilever, reference cylinder, thickness and curvature of individual arches, excavation depth, concrete volume, vertical and peripheral construction joints and automatic generation of finite element and boundary element models. The proposed algorithm was implemented in and runs parallel to the ADAD-IZIIS FEM-BEM, a finite element-boundary element software for structural analyses of concrete arch dams. To demonstrate the performances of the proposed algorithm, an example of a 130m high double-curvature arch dam was considered in a narrow V-shape canyon. The number of graphical options available at the push of a button, such as vertical and horizontal cross sections and 3D perspectives, allows the user to rapidly conduct the dam design within the optimization process.

8. Sunara M., Radnic J., Grgić N., **Harapin A**.: „*Sloshing in medium size tanks caused by earthquake studied by SPH"*, GRAĐEVINAR, 70 (8), 671-684, 2018., doi: https://doi.org/10.14256/JCE.2169.2017.

   Kratki sažetak rada: A numerical study of sloshing effects in medium-sized liquid storage tanks subjected to earthquake is briefly presented in the paper. The following issues are considered in the study: the phenomena occurring in tanks during excitation, the amount of pressure change during sloshing, and the effects on the tank itself. The numerical model used in the study is based on the Smoothed Particle Hydrodynamics (SPH) method. The presented method can be used for simulating main nonlinear characteristics of the fluid, such as viscosity, cavitation, wave breaking, and turbulence. The reliability of the model and some of its possibilities are illustrated on a practical example.

9. Radnic J., Grgić N., Sunara M., **Harapin A**.: „*Shake table testing of an open rectangular water tank with water sloshing"*, Journal of fluids and structures, 81, 97-115, 2018.

   Kratki sažetak rada: Liquid storage tanks are widely used structures in industry. Their safety during an earthquake is important because damage to or the collapse of these structures can cause substantial material damage and human losses. In this paper, the behaviour of small-scale open rectangular water tanks with water sloshing during dynamic excitation was experimentally investigated. The effects of several parameters were studied using a shake table (tank wall stiffness; tank water level; dynamic excitation type; and period, amplitude and duration of the harmonic ground excitation). The most important conclusions of the investigated effects are presented. It is expected that the experimental database can be useful for the verification and calibration of numerical models used to simulation liquid–structure coupled problems.

10. Torić N., **A Harapin A.,** Boko I.: „*Modelling of the influence of creep strains on the fire response of stationary heated steel members"*, Journal of Structural Fire Engineering, 2015.

    Kratki sažetak rada: Aluminium has slowly begun to take its place in modern engineering practice as a suitable material for building structures. However, the mechanical properties of aluminium at normal and high temperatures are relatively unknown, due to the large number of available alloys on the market. High-temperature behaviour of aluminium alloys is especially important to explore, due to the fast degradation of aluminium's mechanical properties when exposed to temperatures up to 400°C. The paper presents the results of constant stress-rate and stationary creep tests conducted on aluminium alloy EN6082AW T6 and analyses its performance with respect to common fire resistance periods.

11. Radnić J., Baloević G., Grgić N., **Harapin A**., Buzov A.: „*The effect of flexibility in ground storey of concrete walls and infilled frames on their seismic response"*, Materialwissenschaft und Werkstofftechnik, 45 (4), 244-257, 2014., DOI: 10.1002/mawe.201400224

    Abstract: By using a previously developed numerical model of the authors for both static and dynamic analysis of plane reinforced concrete and masonry structures that can simulate their main nonlinear effects, the influence of flexibility in ground storey of concrete walls and infilled reinforced concrete frames on their behavior under earthquakes has been researched. Single three-storey reinforced concrete walls and single three-storey reinforced concrete frames were analyzed, each for the case of the equal rigidity through all floors and for the case with flexible ground storey. Frames with strong and weak infilled masonry were considered. Five different earthquakes were applied, that cause high structural nonlinearity. It is assumed that foundations are supported by a rigid base, with the possibility of lifting. Typical displacements, inertial forces, stresses and damage zones of the analyzed structures are presented. Finally, main conclusions and recommendations for practical application are given.

12. Radnić J., **Harapin A**., Markić R., Sunara M., Buzov A.: „*The effect of traditional reinforcement – prestressed reinforcement ratio on the behaviour of concrete beams"*, Materialwissenschaft und Werkstofftechnik, 45 (4), 234-243, 2014., DOI: 10.1002/mawe.201400223

Abstract:: Firstly, the effect of traditional reinforcement – prestressed reinforcement ratio on the behavior of concrete beams up to failure was experimentally investigated. The beams were 10 m long and 0.5 m high, with different ratios of traditional and prestressed reinforcement. The total quantity of reinforcement in each beam was selected to provide their equal ultimate bending bearing capacity. Deflections, stresses in concrete, traditional and prestressed reinforcement, as well as concrete cracks, were monitored until the beams failure. Using the previously developed numerical model of authors of this paper for static analysis of spatial frame structures, which can simulate main nonlinear effects of their behavior, then numerical analysis of tested beams was performed. Good agreement was obtained between the experimental and the numerical results, which confirms the possibility of practical application of the adopted numerical model. Main conclusions and recommendations for practical applications according to results of performed tests are given at the end.

13. Baloević G., Radnić J., **Harapin A**.: „Numerical dynamic tests of masonry-infilled RC frames“, Engineering structures (0141-0296) 50 (2013); 43-55, DOI: 10.1016/j.engstruct.2012.11.034

    Abstract:: Several numerical dynamic tests of two-storey masonry-infilled reinforced concrete frames were performed by adopted numerical models. Bare frames, fully masonry-infilled frames and masonry-infilled frames with openings, with variants of strong or weak concrete frames and masonry, were studied. Uniform harmonic base excitations and base excitations by three real scaled earthquakes were applied. Among other, it is concluded that cross-sectional dimensions of frame, rigidity of masonry, openings in the masonry and type of dynamic base excitation have significant influence on behaviour of masonry-infilled reinforced concrete frames. Finally, some recommendations for practical application are given.

14. Torić N., **Harapin A**., Boko I.: „*The behaviour of structures under fire – numerical model with experimental verification“*, Steel and composite structures (1229-9367) 15, 3; 247-266, 2013.

    Abstract: This paper presents a comparison of results obtained by a newly developed numerical model for predicting the behaviour of structures under fire with experimental study carried out on heated and simply supported steel beam elements. A newly developed numerical model consists of three submodels: 3D beam model designed for calculating the inner forces in the structure, 2D model designed for calculation of stress and strain distribution over the cross section, including the section stiffness, and 3D transient nonlinear heat transfer model that is capable of calculating the temperature distribution along the structure, and the distribution over the cross section as well. Predictions of the calculated temperatures and vertical deflections obtained by the numerical model are compared with the results of the inhouse experiment in which steel beam element under load was heated for 90 minutes.

15. Torić N., **Harapin A**., Boko I.: „*Experimental verification of a newly developed implicit creep model for steel structures exposed to fire“*, Engineering structures (0141-0296) 57; 116-124, 2013.

    Abstract: The paper presents a newly developed numerical model for the behaviour of steel structures exposed to fire capable of taking into account the effect of steel creep at high temperature by using an implicit creep model, as well as the experimental verification of the model. The purpose of the implicit model is to modify the stationary stress–strain curves of the material. After reaching temperatures above 400° C, the stress–strain curves are modified, i.e. stretched, by using a calculated value of creep strain depending on the level of the stress, temperature and time. Verification of the newly developed implicit model was carried out on three in-house experiments that were specifically designed to induce creep strains in simply supported steel beams. Results of the experiments have shown good agreement with the model predictions, indicating the applicability of the implicit model for modelling the response of axially unrestrained steel members.

16. Smilović M., Ćubela D., Radnić J., **Harapin A**.: „*Experimental testing of wood-concrete and steel-concrete composite elements in comparison with numerical testing“*, Materialwissenschaft und Werkstofftechnik, 44 (6), 562-570, 2013.

    Abstract: The paper presents the results of experimental tests with a numerical comparison of some typical composite element systems. Two different kinds of elements were tested: composite steel-concrete and composite wood-concrete elements. Deflections at midspan under monotonously increasing static load on simply supported beams were measured. The affects of different types of composite connections on the results were researched. In numerical tests the structure was modeled with two-dimensional plane elements. The composite surface was modeled with two-dimensional contact (interface) elements for the continuous connection simulation and modified beam elements for the discrete connection simulation. The applied material models include the most important nonlinear effects of concrete, steel and wood behavior, as well as the nonlinear behavior of the composite surface at the connection. The achieved results of the developed numerical model were compared with the results obtained through the experimental test.

17. Radnić J., Smilović M., **Harapin A**., Sunara M.: „*Effect of horizontal ring beams on the ultimate bearing capacity of masonry walls“*, Materialwissenschaft und Werkstofftechnik, 44 (5), 436-448, 2013.

    Abstract: This paper presents the results of numerical tests on the effect of horizontal ring beams on the behaviour of masonry walls under static and dynamic load. Two-storey walls without and with openings were analyzed, with good and poor quality of masonry, with different boundary conditions at the foundation-base interface. The effect of the longitudinal bars profiles of horizontal ring beams on the behavior of walls under horizontal static load, as well as under harmonic and seismic base acceleration was studied. Previously developed numerical model by the authors for static and dynamic analysis of planar masonry structures was used. It was concluded that walls without horizontal ring beams had a significantly smaller strength capacity than equal walls with horizontal ring beams, and that greater longitudinal bars profiles of horizontal ring beams contributes to a higher limit strength capacity of masonry walls.

18. Galić M., Marović P., **Harapin A**.: „*Parametric analysis of constant-moment zone length in four point bending of reinforced concrete beams“*, Materialwissenschaft und Werkstofftechnik, 44 (5), 449-457, 2013.

    Abstract: This paper describes performed numerical parametric analyses of constant-moment zone length in four point bending of reinforced concrete structures by a developed three-dimensional numerical material model for analyzing reinforced

concrete structures. The model is defined by elementary material parameters which can be obtained by a standard uniaxial test so that the very complex behavior of reinforced concrete structures can be described simply and effectively but with a sufficiently accurate model. The aim is to reproduce and to compare obtained results with numerical two-dimensional model by Fantilli et al. and experimental results by Weiss et al. where a constant-moment zone length is investigated to determine whether the flexural response of reinforced concrete beams is size (length) dependent. Parametric analyses will be performed on normal-strength concrete (NSC) and high-strength concrete (HSC) beams with four different constant-moment zone lengths and two different reinforcement ratios. As the developed model enables a very detailed and precise analysis of reinforced concrete structures until crushing with a high accuracy, we hope to confirm Fantilli et al. results what could lead to the improvement of Eurocode 2 where the size effect on the structural response of compressed concrete is not taken into account.

19. Baloević G., Radnić J., **Harapin A**.: „*Numerical dynamic tests of masonry-infilled RC frames*“, Engineering Structures, Vol. 50, 43-55, 2013

    Abstract: Several numerical dynamic tests of two-storey masonry-infilled reinforced concrete frames were per-formed by adopted numerical models. Bare frames, fully masonry-infilled frames and masonry-infilled frames with openings, with variants of strong or weak concrete frames and masonry, were studied. Uniform harmonic base excitations and base excitations by three real scaled earthquakes were applied. Among other, it is concluded that cross-sectional dimensions of frame, rigidity of masonry, openings in the masonry and type of dynamic base excitation have significant influence on behavior of masonry-infilled reinforced concrete frames. Finally, some recommendations for practical application are given.

20. Smilović M., Radnić J., **Harapin A**.: „*Utjecaj vertikalnih serklaža na nosivost zidanih zidova*“, Građevinar 64 (4), 271-284, 2012
    Smilović M., Radnić J., **Harapin A**.: „*Influence of vertical tie columns on bearing capacity of masonry walls*“, Građevinar 64 (4), 271-284, 2012 (in English on web page)

    Abstract: Numerical test results, defining influence of vertical tie columns on the performance of masonry walls subjected to static and dynamic load, are presented in the paper. The analysis focuses on two-storey walls without openings and with openings, with good and poor quality masonry, and with different boundary conditions at the contact between wall foundations and the subsoil. The influence of the profile of longitudinal bars of vertical tie beams on the performance of walls under horizontal static load, and harmonic and seismic acceleration of subsoil, is studied. The numerical model for static and dynamic analysis of in-plane masonry structures, previously developed by the authors, is used in the analysis.

21. Juradin S, Baloević G., **Harapin A**.: „*Experimental Testing of the Effects of Fine Particles on the Properties of the Self-compacting Lightweight Concrete (SCLC)*“, Advances in Materials Science and Engineering, vol. 2012, Article ID 398567, 8 pages, 2012. doi:10.1155/2012/398567

    Abstract: The Self compacting lightweight concrete (SCLC) is a combination of the Self compacting concrete (SCC) and the Lightweight concrete. It combines all the good properties of those two materials and is extremely convenient for the construction of buildings that require low mass and do not require high compressive strength, for example: restoration works in old structures (e.g., replacement of wooden floors), prefabricated elements that require transportation and for structures and elements where the concrete surface should be visible. In this paper the effect of the amount of fine particles on the properties of the self-compacting lightweight concrete (SCLC) in the fresh and hardened state was explored. For this purpose, sets of specimens with different combinations of admixtures of silica fume, fly ash and filler were prepared and tested. Slump flow and flow time of fresh concrete, as well as the dynamic elastic modulus and compressive strength of hardened concrete, were measured at different ages of concrete. The processes of manufacturing and methods of testing are described, as well as the obtained results.

22. Torić N., **Harapin A**., Boko I.: „*Numerički model ponašanja konstrukcija na djelovanje požara*“, Građevinar 64 (1), 1-13, 2012
    Torić N., **Harapin A**., Boko I.: „*Numerical Numerical model for determining fire behaviour of structures*“, Građevinar 64 (1), 1-13, 2012 (in English on web page)

    Abstract: A numerical model and computer program for predicting behaviour of structures subjected to fire action are presented in the paper. The nonlinear numerical procedure is conducted in pre-defined time increments. At that, the distribution of temperature is calculated in each increment and, depending on this calculation, material properties and stiffness of the element are corrected, and the static problem is resolved. The efficiency and accuracy of the model and computer program are presented on an example of a simply supported beam.

23. Trogrlić, B., **Harapin A.**, Mihanović, A.: „*The Null Configuration Model in limit load analysis of steel space frames*“, Materialwissenschaft und Werkstofftechnik, 42 (5), 417–428, 2011.

    Abstract: The paper briefly presents the numerical model for the geometric and material nonlinear limit load analysis of steel space frames under large displacements. This approach favors a global discretization by 1D beam-column finite elements over the one with 3D elements. The steel cross-section is discretized with 2D elements so that the fiber decomposition procedure can be applied to solve the material and geometrical nonlinear behavior of the cross-section under biaxial moments and axial forces. A local discretization of each beam element based on the comparative body model (i.e., a prismatic body discretized using brick elements, element by element, during the incremental-iterative procedure) allows determining the torsional constant of the cross-section under limited warping. The model implements bending, lateral and torsional stability effects. For the large displacement analysis, an originally developed Null Configuration Model (NCM) is applied as an incremental application of the Total Lagrange - small displacement theory. A step-by-step procedure for the incremental loading of a follower load is applied. The numerical model has been implemented in a computer program for the practical engineering computation of the limit load of steel space frames. Some of model's possibilities are illustrated in the presented practical example.

24. **Harapin A.**, Radnić J., Ćubela D.: „*Numerical model for composite structures with experimental confirmation*“, Materialwissenschaft und Werkstofftechnik, 39 (2), 143-156, 2008

Abstract: The paper shortly presents numerical model for simulation of composite structures. The main structure is modeled with two-dimensional plane elements. The composite surface is modeled with two-dimensional interface elements for continuous connection simulation and modified beam elements for discrete connection simulation. The applied material model was used for the purpose of simulation of reinforcing concrete structures. It includes the most important nonlinear effects of reinforced concrete behavior: yielding in compression and opening and propagation of cracks in tension, with tensile and shear stiffness of cracked concrete, as well as nonlinear behavior of reinforced steel. It also includes nonlinear behavior of composite surface and connection elements. The model was confirmed on experimental tests of composite concrete Omnia slabs, which are common in usage. The obtained test results were compared with the results obtained through the developed numerical model.

(iv) Scientific papers published in journals that are represented in other major bibliographic databases:

1. **Harapin A**., Radnic J., Sunara M.: „*Numerical Model for Fluid-Structure Interaction by the Coupled SPH and the FEM Method*“, International Journal for Engineering Modelling, 32 (1), 39-58, 2019
2. Sunara M., Radnic J., Grgić N., **Harapin A**.: „*Fluid Structure Interaction Analysis of Liquid Tanks by the Coupled SPH-FEM Method with Experimental Verification*“, Defect and Diffusion Forum,391, 152-173, 2019.
3. **Harapin A**., Ostojić-Škomrlj N., Ćubela D.: „*A Case Study on Construction Technology for the Reinforced Concrete Dome of the Višnjik Sports Hall, Zadar, Croatia*“, International Review of Civil Engineering (IRECE), 9 (4), 131-140, 2018.
4. N Torić, I Boko, I Uzelac, **A Harapin**, V Divić, M Galić, J Brnić, M Čanađija, G Turkalj, D Lanc, M Brčić, IW Burgess: „*High-temperature properties of aluminum alloy EN6082AW T6*“, Applications of Fire Engineering, 31-35, 2017.
5. Juradin S.; Baloević G.; **Harapin A**.: Impact of Vibrations on the Final Characteristics of Normal and Self-compacting Concrete, Materials Research - Ibero-american Journal of Materials, Vol. 17, Issue: 1, pp: 178-185, 2014. DOI: 10.1590/S1516-14392013005000201
6. Torić N., **Harapin A**., Boko I.: „*Modelling of Steel Creep at High Temperatures Usingan Implicit Creep Model*“, Key Engineering Materials Vol. 553 (2013) pp 13-22, doi:10.4028/www.scientific.net/KEM.553.13
7. Radnić, J.; **Harapin A**., Markić R., Grgić N., Sunara M., Buzov A.: „*Effect of the Shear Force on the Failure of Spatial Concrete Framework Structures*“, Key Engineering Materials Vol. 553 (2013) pp 67-80, doi:10.4028/www.scientific.net/KEM.553.67
8. Radnić J., **Harapin A**., Matešan D., Trogrlić B., Smilović M., Grgić N., Baloević G.: „*Numerički model za statički i dinamički proračun zidanih konstrukcija*“, Građevinar 63 (6), str. 529-546, 2011
9. Radnić, J., Matešan. D.; **Harapin, A**.: „*Modeliranje krutosti na savijanje u betonskim okvirima*“, Građevinar 62 (5), str. 401-408, 2010
10. **Harapin A.**, Radnić J., Brzović D.: „*WYD method for an eigen solution of coupled problems*“, Int. Jnl. of Multiphysics, 3 (2), 167-176, 2009.
11. Radnić, J.; **Harapin, A**., Markić R.: „*Utjecaj spona na tlačnu nosivost betonskih stupova*“, Građevinar 60 (11), 953-959, 2008
12. Radnić, J.; **Harapin, A**., Markić R.: „*Ispitivanja utjecaja spona na nosivost betonskih greda pri tlačnom slomu*“, Građevinar 59 (9), 789-795, 2007. (“*Testing influence of ties on the bearing capacity of concrete beams at compressive failure*”) (In Croatian)
13. Radnić, J.; Markota, L.; **Harapin, A**.: “*Numerical model for crack width calculation in concrete elements”*, Structural Engineering International: Journal of the International Association for Bridge and Structural Engineering (IABSE) 16 (1), 59-65, 2006.
14. Radnić, J.; Ćubela, D.; **Harapin, A**.: “*Experimental tests of some composite steel-concrete, wood-concrete and concrete-concrete elements”*, Int. Jour. for Engineering Modelling 16, 3-4, 121-128, 2003.
15. Radnić J., Matešan D., **Harapin A**.: *”Model geometrijske nelinearnosti u statičkoj analizi ljusaka”,* Građevinar 55 (10), 583-589, 2003. (*“Geometrical nonlinearity model in statical analysis of shells”*) (In Croatian)
16. Radnić, J.; Markota L., **Harapin, A**.: “*Numerički model proračuna širina pukotina betonskih elemenata”*, Građevinar 55 (6), 317-327, 2003. (*“Numerical model for calculating width of cracks in concrete elements”*) (In Croatian)
17. Radnić, J.; **Harapin, A**.; Matešan, D.: “*Numerički postupak pri statičkoj i dinamičkoj analizi betonskih ljusaka”*, Građevinar 53 (12), 759-771, 2001. (*“Numerical procedure in the static and dynamic analysis of concrete shells”*) (In Croatian)
18. Radnić, J.; **Harapin, A**.; Matešan, D.: “S*tatička i dinamička analiza betonskih ljusaka – element ljuske i modeli”*, Građevinar 53 (11), 695-709, 2001. (*“Static and dynamic analysis of concrete shells - shell element and models”*) (In Croatian)
19. Radnić, J.; Matešan, D.; **Harapin, A**.: “*Model for static analyses of concrete shells”*, Engineering Modelling 13, 3-4, 93-99, 2000.
20. Radnić J., **Harapin A**.: *"Model dimenzioniranja kompozitnih presjeka"*, Građevinar 45 (7), 379-389, 1993. (*“Model for dimensioning of composite cross-section”*) (In Croatian)

(v) Invited lectures

1. **Harapin A.**, Radnić J., Sunara M.: Numerical simulation of coupled problems, Computational Methods and Experimental Measurements XVII, Opatija, 2016.

2. **Harapin A.**: "Numerical Models and Procedures for the Simulation of Fluid-Structure Interaction Problems", Proc. of CE 2014, Cluj-Napoca, Romania, 2014.
3. Radnić J., **Harapin A**., Matešan D., Grgić N., Smilović M., Sunara M., Šunjić G., Džolan A.: „*Numerical simulation of fluid-structure coupled problems*", International Conference Marking 60 Years of Operation of DIMK, Belgrade, Serbia, eds. Grdić Z., 2012., pp
4. Galić M.; Marović P.; Nikolić, Ž., **Harapin, A.**: „*Numerical modelling of tension influences in 3D reinforced concrete structures*", Proceedings of the 10th International Conference on Computational Plasticity, Onate E.; Owen R.; Suarez B., Barcelona: CIMNE, 2009. pp. 539/1-4

(vi) Papers published in the Proceedings of the international conference

1. Sunara Kusić M., Radnić J., **Harapin A.**: "Pressures on the liquid storage tanks caused by sloshing during earthquake studied by SPH numerical model", 10th International Conference on Advanced Computational Engineering and Experimenting, ACE-X 2013, Split, Croatia, 2016.
2. Šunjić G., Milašinović Z., **Harapin A.**: "The numerical simulation of the seismic response of Jablanica dam", 10th International Conference on Advanced Computational Engineering and Experimenting, ACE-X 2013, Split, Croatia, 2016.
3. Torić, Neno; Burgess, Ian W.; Brnić, Josip; Boko, Ivica; Turkalj, Goran; Čanađija, Marko; **Harapin, Alen**; Divić, Vladimir; Uzelac, Ivana. A Unified Rheological Model for Analysis of Steel Behaviour at High Temperature, Structures in Fire, Proceedings of the 9th International Conference / Moreyra Garlock, Maria E. ; Kodur, V.K.R. (ur.). Lancaster, Pennsylvania : DEStech Publications, Inc., 2016. 1008-1015
4. **Harapin A.**, Ćubela D., Bevanda L., Jurišić M.: "Construction technology for the reinforced concrete dome of the višnjik sports hall", Proc. of ICESA 2014, Side, Antalya, Turkey, 2014.
5. Radnić J., **Harapin A**., Sunara M.: "Seismic analysis of the Lešće dam including water-dam-soil dynamic interaction", Computational Methods for Coupled Problems in Science and Engineering V - COUPLED PROBLEMS 2013, Proceedings, str. 732-743, Santa Eularia, Ibiza, Spain, 2013.
6. Sunara M., Radnić J., **Harapin A**., Đolan A., Tomić T.: "Seismic analysis of the Lešće dam", International Conference on Earthquake Engineering - SE50-EEE, Proceedings, Skopje, Macedonia, 2013.
7. Radnić J., **Harapin A**., Markić R., Sunara M., Buzov A..: "The effect of classical reinforcement – prestressed reinforcement ratio on the behaviour of concrete beams", 7th International Conference on Advanced Computational Engineering and Experimenting, ACE-X 2013, Madrid, Spain, 2013.
8. Radnić J., **Harapin A.**, Grgić N., Markić R., Sunara M.: "Effect of the Shear Force on the Failure of Spatial Concrete Framework Structures", Abstract Book of 6th International Conference on Advanced Computational Engineering and Experimenting – ACEX2012, p. 81-82, 2012.
9. Radnić J., Grgić N., **Harapin A.**, Matešan D.: "Effect of the Earthquake Type on Response of Some Concrete and Masonry Structures", Abstract Book of 6th International Conference on Advanced Computational Engineering and Experimenting – ACEX2012, p. 85-86, 2012.
10. Munjiza A., Divić V., Vranješ M., **Harapin A.**, Peroš B.: "Computational Mechanics of Discontinua and Structures in Distress", Abstract Book of 6th International Conference on Advanced Computational Engineering and Experimenting – ACEX2012, p. 117, 2012.
11. Torić N., **Harapin A.**, Boko I., Peroš B.: "Modelling of steel creep at high temperatures using implicit creep model", Abstract Book of 6th International Conference on Advanced Computational Engineering and Experimenting – ACEX2012, p. 117-118, 2012.
12. Radnić J., **Harapin A.**, Smilović M., Sunara M.: "Effect of the Horizontal Ring Beams on the Ultimate Bearing Capacity of Masonry Walls", Poster on 6th International Conference on Advanced Computational Engineering and Experimenting – ACEX2012, 2012.
13. Juradin S., Dretvić Halbärth A., Baloević G., **Harapin A.**: "The influence of silica fume in mortar composition and as a part of the curing medium on mechanical properties of mortar", Book of proceedings of 2nd International Scientific Conference GTZ2012, Tuzla, BiH, p. 153-160, 2012.
14. Juradin S., Čolić Ž., Baloević G., **Harapin A.**: "The analizing of influence of aggregate type and quantity on equal-size grain and lightweight concrete properties", Book of proceedings of 2nd International Scientific Conference GTZ2012, Tuzla, BiH, p. 161-168, 2012.
15. Bilanović M., Prlenda M., Pletikosić M., Ferić K., **Harapin A.**: „Cement production in the Split area and the protection of the environment", Collection of Summaries, 5th International Conference on Industrial Heritage, Rijeka, Hrvatska, p. 74-75, 2012.
16. Baloević G.; Radnić J.; **Harapin A.**: "Numerical dynamic tests of masonry-infilled RC frames", IASS-IACM 2012: 7th International Conference on Computational Mechanics for Spatial Structures, Sarajevo, BiH, p. 49-52, 2012.
17. Radnić J., **Harapin A.**, Smilović M., Grgić N., Glibić M.: "Static and Dynamic Analysis of the Old Stone Bridge in Mostar", IASS-IACM 2012: 7th International Conference on Computational Mechanics for Spatial Structures, Sarajevo, BiH, p. 301-304, 2012.

18. Juradin S., Banjad-Pečur I., **Harapin A.;** Baloević, G. Džapo, K.: „*The effects of the curing conditions on properties of coloured concrete*“, 4. Int. Conference Civil Engineering - Science and Practice, Eds. Duško Lučić, Žabljak, Crna Gora, p. 153-158, 2012.

19. Smilović M., Ćubela D., Radnić J., **Harapin A.**: „*Testing of Wood-Concrete and Steel-Concrete Composite Elements*“, 5th International Conference on Advanced Computational Engineering and Experimenting (ACEX 2011), Eds. A. Öchsner, L. da Silva; Vilamoura, Portugal, 2011., extended abstract on CD

20. Radnić J., Matešan D., **Harapin A.**, Smilović M., Grgić N.: „*Numerical Model for Static and Dynamic Analsis of Masonry Structure*“, 5th International Conference on Advanced Computational Engineering and Experimenting (ACEX 2011), Eds. A. Öchsner, L. da Silva; Vilamoura, Portugal, 2011., extended abstract on CD

21. Torić N., Peroš B., **Harapin A.**, Boko I.: „*Numerical Model for Predicting the Behaviour of Structures Under Fire*“, 5th International Conference on Advanced Computational Engineering and Experimenting (ACEX 2011), Eds. A. Öchsner, L. da Silva; Vilamoura, Portugal, 2011., extended abstract on CD

22. Šunjić, G.; Radnić, J.; Brzović, D.; **Harapin, A.:** „*Numerical model for fluid-structure coupled problems*“, The 14th European Conference on Earthquake Engineering (14ECEE), Eds. M. Garevski; Ohrid, Makedonija, 2010., Extended abstract: 731, full article on CD

23. Brzović, D.; Radnić, J.; **Harapin, A.**: „*Numerical Model for Fluid-Structure Coupled Problems under Seismic Load*“, 4th International Conference on Advanced Computational Engineering and Experimenting (ACEX 2010), Eds. A. Öchsner, L. da Silva; Pariz, Francuska, 2010., full article on CD

24. **Harapin, A.;** Radnić, J.; Markić, R.; Baloević, G.: „*Numerički model za nelinearnu statičku analizu betonskih okvira*“, 3. Int. Naučno-Stručni Skup: Građevinarstvo - Nauka i praksa, Eds. Duško Lučić, Žabljak, Crna Gora, p. 63-68, 2010 *(“Numerical model for nonlinear static analysis of concrete frames”*) (In Croatian)

25. **Harapin, A**.; Radnić, J.; Brzović, D.: „*Primjena numeričkog modela dinamičke interakcije voda-konstrukcija na analizi brane Grančarevo*“, 3. Int. Naučno-Stručni Skup: Građevinarstvo - Nauka i praksa, Eds. Duško Lučić, Žabljak, Crna Gora, p. 57-62, 2010. (*“Application of numerical model of dynamic intraction between fluid and structure on analysis of Grančarevo dam”*) (In Croatian)

26. Radnić, J.; **Harapin, A**.; Matešan, D.; Trogrlić, B.; Smilović, M.; Grgić, N.; Baloević, G.: „*Model za statičku i dinamičku analizu zidanih konstrukcija*“, 3. Int. Naučno-Stručni Skup: Građevinarstvo - Nauka i praksa, Eds. Duško Lučić, Žabljak, Crna Gora, p. 123-134, 2010. (“*Model for static and dynamic analysis of masonry structures*”) (In Croatian)

27. Šunjić, G., Radnić, J., **Harapin, A.:** *"Behavior of submerged structures under seismic load conditions",* International Scientific Symposium Modeling of Structures, Eds. Ivo Čolak, 691-702, Mostar, 2008.

28. Markić, R., Mucić, S., Radnić, J., **Harapin, A**., Grgić, N.: *"Numerical model for the nonlinear analysis of spatial framework systems",* International Scientific Symposium Modeling of Structures, Eds. Ivo Čolak, 345-366, Mostar, 2008.

29. Ćubela, D., Radnić, J., **Harapin, A.,** Grgić, N.: *"Experimental tests and numerical verification of omnia slabs behavior",* International Scientific Symposium Modeling of Structures, Eds. Ivo Čolak, 79-100, Mostar, 2008.

30. Radnić J., **Harapin A.**, Brzović D.: *˝WYD method for an eigen solution of coupled problems˝*, 2nd International Conference on Advanced Computational Engineering and Experimenting, p.p. 237-246, Eds. A. Öchsner, L. da Silva; Barcelona, Španjolska, July, 2008., full article on CD

31. Radnić, J., **Harapin, A.,** Smilović, M.: *„Concrete girder bridges with long prefabricated girders“*, 3rd Central European Congress on Concrete Engineering Innovative, Eds. G. L. Balázs; Visegrád, Hungary, September, 2007.

32. Radnić, J., **Harapin, A.,** Smilović, M.: „*Seismic response of nuclear spent fuel container*“, Multidisciplinarno modeliranje i projektovanje građevinskih materijala i konstrukcija, Subotica, Srbija, June, 2007., full article on CD

33. Radnić J., **Harapin A**., Šunjić G.: „*Seismic analysis of submerged tunnel*s“, Multidisciplinarno modeliranje i projektovanje građevinskih materijala i konstrukcija, Subotica, Srbija, June, 2007., full article on CD

34. **Harapin A.**, Radnić J., Ćubela D.: „*Numerical model for composite structures with experimental verification*“, Abstract book Ace-X 2007 (International Conference on Andvanced Computational Engineering and Experimenting), Eds. A. Öchsner, L. da Silva; Algarve, Portugal, June 2007., full article on CD

35. Radnić J., Markota L., **Harapin A**.: *˝Numerički model proračuna širina pukotina kompozitnih betonskih elemenata˝*, 1st Symposium Computing in Engineering, Zagreb; December, 2003. (*“Numerical model for crack width calculation in composite concrete elements”*) (In Croatian)

36. Radnić J., **Harapin A**.: *˝Statička i dinamička analiza rashladnog tornja nuklearne elektrane˝*, 1st Symposium Computing in Engineering, Zagreb; December, 2003. (*“Static and dynamic analysis of cooling tower of nuclear plant”*) (In Croatian)

37. Radnić J., **Harapin A**., Šunjić G.: *˝3D model seizmičkog odgovora podvodnih konstrukcija˝*, 1st Symposium Computing in Engineering, Zagreb; December, 2003. (*“3D model seismic response of underwater structures”*) (In Croatian)

38. Radnić J., **Harapin A**.: *“Dynamic Analysis of Nuclear Spent Fuel Container*”, Prod. 4th Congress of Croatian Society of Mechanics, Eds. F. Matejiček, Croatian Society of Mechanics, Bizovac, pp. 157-158, 2003.

39. **Harapin A**., Radnić J.: *"Numerical Analysis of Hydrodynamic pressures on 3D rigid structures*", Prod. 3rd Congress of Croatian Society of Mechanics, Dubrovnik, Eds. P. Marović, Croatian Society of Mechanics, pp. 217-222, 2000.

40. Radnić J., **Harapin A**.: *"Dynamic interaction of liquid-solid coupled system*", Prod. 2nd Congress of Croatian Society of Mechanics, Supetar, Eds. P. Marović, I. Sorić and N. Vranković , pp. 513-518, 1997.

41. Radnić J., **Harapin A**.: *"Biaxially loaded composite cross-sections"*, Proc. Int. Conf. Structural Mechanics in Reactor Tehnology (SMiRT), Stuttgart, H 11/5, pp. 101-106, 1993.

42. Radnić J., **Harapin A**.: *"Stress-strain analysis of Composite cross sections"*, Proc. Int. Conf. of Nonl. Engng. Conp., Swansea, Eds. N. Bićanić, P. Marović, D.R.J. Owen, V. Jović and A. Mihanović, Pineridge Press, Swansea, pp. 409-421, 1991.

(vii) Papers published in proceedings of the national conference

1. Radnić J., **Harapin A**., Ćubela D.: *"Eksperimentalna provjera efikasnosti sprezanja omnia ploča",* Zbornik radova, Sabor hrvatskih graditelja, Cavtat, str. 347-352, travanj, 2004. (Experimental verification of the efficiency of omnia slabs coupling) (In Croatian)

2. Radnić J., **Harapin A**., Matešan D.: *"Numerički model proračuna tankostijenih čeličnih konstrukcija",* Zbornik radova, Sabor hrvatskih graditelja, Cavtat, str. 353-360, travanj, 2004. (The numerical model of thin-walled steel structures) (In Croatian)

3. Radnić J., **Harapin A**., Šunjić G.: *"Uronjeni tuneli – 2D model seizmičkog odgovora"*, Zbornik radova savjetovanja "Nove tehnologije u hrvatskom graditeljstvu", Brijunski otoci, str. 253-260, 2003. (Immersed Tunnels - 2D model of the seismic response) (In Croatian)

4. Radnić J., **Harapin A**.: *"Seizmički proračun mostova"*, Zbornik radova znanstveno - stručnog savjetovanja "Objekti na autocestama", Plitvice, str. 201-210, 2003. (Seismic Calculation of Bridges) (In Croatian)

5. Radnić J., **Harapin A**.: "*Hidrodinamički tlakovi tekućine na potpuno krute konstrukcije"*, V Opći Sabor HDGK, Brijunski otoci, str. 535-542, 2001. (Hydrodynamic fluid pressure on a rigid structure) (In Croatian)

6. Radnić J., Matešan D., **Harapin A**.: "*Model za statičku, dinamičku i vremenski ovisnu analizu betonskih ploča i ljusaka"*, V Opći Sabor HDGK, Brijunski otoci, str. 601-614, 2001. (Model for static, dynamic and time-dependent analysis of concrete slabs and shells) (In Croatian)

7. Radnić J., **Harapin A**.: "*Dinamička interakcija sustava tekućina-konstrukcija-tlo s uključenjem tlakova u pukotinama"*, IV kongres DHGK, Cavtat, str. 429-436, 1996. (Dynamic interaction of fluid-structure-soil system with including pressures in the cracks) (In Croatian)

8. Radnić J., **Harapin A**.: "*Utjecaj oblika σ-ε dijagrama betonskog čelika na računsku armaturu betonskih presjeka prema EUROCODE 2"*, IV DHGK, Cavtat, str. 437-444, 1996. (Influence of σ-ε diagram of reinforcing steel on the quantity of reinforcement in the concrete sections according to EUROCODE 2) (In Croatian)

9. Radnić J., **Harapin A**.: *"Utjecaj vlačne otpornosti betona na naponsko-deformacijsko stanje i krutost AB presjeka"*, Drugi sabor Graditelji u obnovi Hrvatske, Brijunski otoci, str. 155-160 1993. (Influence of concrete tensile strength on stress-strain state and stiffness of R/C sections) (In Croatian)

10. Radnić J., **Harapin A**.: *"DKP – program za dimenzioniranje kompozitnih poprečnih presjeka"*, Simpozij: Kompjutor u obnovi Hrvatske, Zagreb, str. 207-212, 1992. (DKP - program for the composite cross sections calculation) (In Croatian)

(viii) Papers published in journals and proceedings which may not include into the previous categories

1. Baričević, I.; **Harapin, A.**; Perković Jović, V.: Idejni projekt stadiona Arena Nikola Gazdić Split, e-Zbornik Elektronički zbornik radova Građevinskog fakulteta / Kožul, Mladen (ur.)., Mostar: Sveučilište u Mostaru, Građevinski fakultet, 2019.

2. **Harapin, A.**: Gdje je nestao inženjer? // IZAZOVI U GRADITELJSTVU 4 / Lakušić, Stjepan (ur.)., Zagreb: Hrvatski savez građevinskih inženjera, 2017. str. 129-149 (pozvano predavanje, cjeloviti rad (in extenso), ostalo)

3. **Harapin, A**.:Zašto je važna suradnja // Izazovi u graditeljstvu 3 / Lakušić, Stjepan (ur.)., Zagreb: Hrvatski Savez Građevinskih Inženjera, 2015. str. 111-126 (pozvano predavanje, cjeloviti rad (in extenso), stručni)

4. **Harapin, A**.: Obrazovanje jučer, danas, sutra... (s posebnim osvrtom na graditeljstvo) // Izazovi u Graditeljstvu 2 / Lakušić, Stjepan (ur.)., Zagreb: HSGI, Zagreb, 2014. str. 222-245 (pozvano predavanje, domaća recenzija, cjeloviti rad (in extenso), ostalo)

5. Radnić J., **Harapin A**.: "*Model dimenzioniranja kompozitnih poprečnih presjeka opterećenih na savijanje"*, Zbornik 2 Građevinskog fakulteta Sveučilišta u Mostaru, str. 191-214, 2002. (Model for the dimensioning of composite cross-section subjected to bending) (In Croatian)

6. **Harapin A**.: "*Numerička simulacija dinamičkog međudjelovanja tekućine i konstrukcije – I dio"*, Zbornik 1 Građevinskog fakulteta Sveučilišta u Mostaru, str. 183-202, 2001. (Numerical simulation of the dynamic interaction of fluids and structures - Part I) (In Croatian)

7. Radnić J., **Harapin A**.: *"DAFIK – Interakcija fluida i konstrukcije"*, Građevinski godišnjak 1996., Zagreb, str. 709-711, 1996. (DAFIK - Interaction between fluid and structure) (In Croatian)

(ix) Papers published in the magazine in collaboration with students

1. I. Ivandić, T. Lovrić, **Harapin A**.: " *Glavni projekt trgovačkog centra „Portanova" u Osijeku - Betonski dijelovi građevine" (Main design of the Shopping Mall Portanova in Osijek - Concrete Parts of Structure)*, e-GFOS, br. 2, May 2011. (http://e-gfos.gfos.hr)
2. Ćurković G., **Harapin A**.: "*Usporedba konstrukcijskih rješenja krovne konstrukcije dvorane u stobreču" (A Comparison of Structural Solutions of Roof of School Hall in Stobreč)*, e-GFOS, br. 3, December 2011. (http://e-gfos.gfos.hr)
3. Also papers: (vi)-6. and (vi)-7.

(x) The developed computer program for structural analysis

1. **Harapin A**., Radnić J. "DAFIK-3D" – Dynamic analysis of fluid-structure interaction for 3D spatial problems, 2006.
2. **Harapin A**., Radnić J. "DAK-3D" – Dynamic analysis of structures for 3D spatial problems, 2005.
3. Radnić J., **Harapin A**.. "DALJ" – Dynamic analysis of reinforced concrete shells with a special reinforced concrete model for dynamic load, 2003.
4. **Harapin A**., Blanuša S., Nižetić V., "Aspalathos" – Static and dynamic analysis of spatial beam and plate structures, 1997.-2009.
5. Radnić J., **Harapin A**.: "ENPP" - Calculation of Exploatational stresses of reinforced concrete sections with the inclusion of creep of concrete, 1994.
6. Radnić J., **Harapin A**.: "DKP-REO" – Dimensioning of classically reinforced, prestressed and composite concrete cross-section loaded with eccentric longitudinal force, with the inclusion of the rheological properties of concrete, 1993.
7. Radnić J., **Harapin A**.: "DKP" - Dimensioning of classically reinforced, prestressed and composite concrete cross-section loaded with eccentric longitudinal force for short term load, 1991.

(xi) Qualifying papers

1. **Harapin A.**: *"Numerička simulacija dinamičkog međudjelovanja tekućine i konstrukcije"*, Doktorska disertacija, Građevinski fakultet University of Split, 2000. (Numerical simulation of the dynamic interaction between fluids and structures)
2. **Harapin A**.: "*Interakcija fluida i konstrukcije s uključenjem tlakova u pukotinama"*, Magistarski rad, Građevinski fakultet University of Split, 1996. (Interaction between fluid and structure with the inclusion of pressure in the cracks)

C.1.2 Scientific projects

(i) Active participation in the realization of scientific projects

1. „**Numerička analiza i ojačanje AB konstrukcija**“, voditelj: Jure Radnić, šifra projekta: 2-11-051, financirano od: Ministarstvo znanosti i obrazovanja Republike Hrvatske, trajanje: 1991.-1993. , svojstvo: suradnik; (Numerical analysis and improvement of R/C structures, project leader Jure Radnić)
2. „**Potpuno armirane lakobetonske konstrukcije**“, voditelj: Ante Mihanović, šifra projekta: 83130, financirano od: Ministarstvo znanosti i obrazovanja Republike Hrvatske, trajanje: 1996.-2002. , svojstvo: suradnik; (Fully reinforced lightweight R/C structures, project leader Ante Mihanović)
3. „**Modeliranje međudjelovanja tekućina-konstrukcija-tlo**“, voditelj: Jure Radnić, šifra projekta: 83131, financirano od: Ministarstvo znanosti i obrazovanja Republike Hrvatske, trajanje: 1996.-2002. , svojstvo: suradnik; (Modeling of fluid-structure-soil interaction, project leader Jure Radnić)
4. „**Numerička simulacija međudjelovanja tekućine i konstrukcije**“, Poticajni projekt za mlade znanstvenike, šifra projekta: 083136, trajanje: 1998.-2000. , svojstvo: voditelj (Numerical simulation of interaction between fluid and structure**,** project leader**)**
5. „**Numerička i eksperimentalna analiza kompozitnih konstrukcija**“, voditelj: Jure Radnić, šifra projekta: 0083141, financirano od: Ministarstvo znanosti i obrazovanja Republike Hrvatske, trajanje: 2002.-2006. , svojstvo: suradnik; (Numerical and experimental analysis of composite structures, project leader Jure Radnić)
6. „**Eksperimentalna i numerička istraživanja potresne otpornosti građevina**“, voditelj: Jure Radnić, šifra projekta: 083-0000000-1538, financirano od: Ministarstvo znanosti i obrazovanja Republike Hrvatske, trajanje: 2007.-today. , svojstvo: suradnik; (Experimental and numerical study of seismic resistance of buildings, project leader Jure Radnić)
7. **„Utjecaj deformacija od puzanja na nosivost čeličnih i aluminijskih stupova pri djelovanju požara“**, voditelj Ivica Boko, šifra projekta: UIP-2014-09-5711, financirano od: Ministarstvo znanosti i obrazovanja Republike Hrvatske, trajanje: 2015.- 2018., svojstvo: suradnik (Influence of creep strain on the load capacity of steel and aluminium columns exposed to fire, project leader: Ivica Boko)

C.1.3 Scientific membership

1. Croatian Society for Mechanics (CSM)

C.2 EDUCATIONAL ACTIVITIES

C.2.1 Participation in teaching (lectures and exercises)

(i) At the Faculty of Civil Engineering, Architecture and Geodesy, University of Split

- Professional study
  lectures: *Concrete structures* (1991-2002)
  exercises: *Home installations* (2009 - today)
- University studies (old programme)
  exercises: *Concrete structures* (1996-2001)
  Concrete structures I and II (1991-2009)
  Bridges (1996-2009)
  lectures: *Concrete structures I and II* (2001-2009)
- University studies (new programme – Bologna – 2008-today)
  Lectures/exerc.: *The Basis of Concrete structures* (III year/ Undergraduate university study)
  Bridges (III year/ Undergraduate university study)
  Concrete structures I (I year/ Graduate university study)
  Concrete structures II (I year/ Graduate university study)
  Composite structures (I year/ Graduate university study)
  Concrete bridges (II year/ Graduate university study)
  Performance of civil engineering structures (II year/ Graduate university study)
  Numerical modeling of concrete structures (II year/ Graduate university study)
  Designing of structures with computer (II year/ Graduate university study)
  Durability of structures (II year/ Graduate university study)
  Home installations (II year/ Graduate university study)
- pHD studies (new programme – Bolonja – 2008-today)
  lectures: *Numerical modeling of concrete structures*
  Creating bearing structures of bridges and buildings
  Numerical modeling of the dynamic interactions between fluid-soil-structure
  Selected sections of concrete and masonry structures

(ii) At the Faculty of Civil Engineering, University in Mostar

- University studies
  exercises: *Concrete structures* (1996 – 2001)
  lectures: *Bridges* (2001 – today)
  Concrete bridges (2007 – today)
  Numerical modeling of concrete structures (2015 – today)
  Home installations (20015-2022)

C.2.2 Authors of written materials

(i) Course books

1. **Harapin A**., Radnić J., Grgić N., Smilović Zulim M., Sunara M., Buzov A., Banović I.: "Basic of concrete constructions: harmonized with: HRN EN 1992-1-1:2013/A1 :2015", University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2023 (in Croatian)Radnić J.,
2. Ćubela D., **Harapin A**.: *"Spregnute konstrukcije – Numerički model za analizu pod kratkotrajnim opterećenjem",* Faculty of Civil Engineering and Architecture University of Split, University of Mostar, Faculty of Civil Engineering, 130 str. Split, 2005. (*Composite Structures - Numerical model for analyzing under the short-term load) (In Croatian)*
3. Radnić J., Markota L., **Harapin A**.: *"Raspucavanje betona",* Faculty of Civil Engineering and Architecture University of Split, 117 str. Split, 2005. (*Cracking of concrete) (In Croatian)*
4. Radnić J., **Harapin A**., Matešan D.: *"Betonske ploče i ljuske – Numerički model za statičku, dinamičku i vremenski ovisnu analizu",* Faculty of Civil Engineering and Architecture University of Split / Institut građevinarstva Hrvatske d.d. Zagreb, 164 str., 2005. (*Concrete slabs and shells - numerical model for static, dynamic and time-dependent analysis) (In Croatian)*

(ii) Scripts

- **Harapin A**., Galić M.: *"Kućne instalacije"*, University of Split, Faculty of Civil Engineering, Architecture and Geodesy (Home installations materials for lectures)
- **Harapin A**., Šunjić G., Jurišić M.: *"Mostovi – radni materijali za praćenje predavanja"*, University of Mostar, Faculty of Civil Engineering (Bridges - working materials for lectures)

(iii) Handbooks

- Radnić J., **Harapin A**.: *"Uporabna naprezanja pravokutnih armiranobetonskih presjeka"*, Građevinski fakultet University of Split, 1999. (*Exploatational stresses of reinforced concrete sections*)

(iv) Digital literature and presentations

- On the web (Internet) site of the faculty are links to the scripts: Fundamentals of Concrete structures and Bridges. It also contains links to multiple PowerPoint presentations and PDF files of the subjects: Bridges, Concrete structures and Home installation.

C.2.3 Mentoring and Co-Mentoring for Masters and pHD thesis

1. Ante Džolan: Numerical modeling of 3D spatial structures including long-lasting deformations of concrete, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, January 2020 (Mentor)
2. Dragan Ćubela: Usability properties of concrete structures depending on the degree of prestressing, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, September 2017. – Doktorska disertacija (Komentor)
3. Marina Sunara: Numerical Modeling of Structure and Fluid Interaction by Combination of the Finite Element Method and Smoothed Particles Hydrodynamics, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, May 2017 – Doktorska disertacija (Mentor)
4. Goran Šunjić: Numeričko modeliranje ponašanja betonskih brana pod utjecajem seizmičkih opterećenja (Numerical modelling of the behaviour of concrete dams affected by seismic loads), University of Mostar, Faculty of Civil Engineering, Decemeber 2016 – PHd
5. Marija Smilović: Ponašanje i numeričko modeliranje zidanih konstrukcija pod statičkim i dinamičkim opterećenjem (Structure's behavior and numerical modeling under static and dynamic load), University of Split, Faculty of Civil Engineering, Architecture and Geodesy, February 2014 – PHd thesis
6. Radoslav Markić: Utjecaj odnosa prednapete i klasične armature na ponašanje betonskih nosača (Influence of relation of prestressed and mild reinforcement on the behavior of concrete beam structures), University of Split, Faculty of Civil Engineering, Architecture and Geodesy, July 2012 – PHd
7. Danijela Brzović: Doprinos numeričkom modeliranju dinamičkog međudjelovanja tekućine i konstrukcije (Contribution of numerical modeling of the dynamic interaction of fluids and structures), University of Split, Faculty of Civil Engineering and Architecture, February 2008 – Master thesis

Currently mentor for PHd thesis for research assistants: Marino Jurišić (ETA 2024.) and Neda Bebek (ETA 2026.).

C.2.3 Članstvo u komisijama pri obrani doktorskih disertacija na drugim institucijama

1. Haris Kalajdžisalihović: Application of the Particle Method with Smoothed Core Functions in Hydrotechnics, Univerzity in Sarajevo, Bosnia and Herzegovina, Faculty of Civil Engineering, 2019
2. Daniela Dvornik Perhavec: Učinkovitejše načrtovanje projektov obnove zgodovinskih objektov z integracijo tehnologij za upravljanje znanja, Univerza v Mariboru, Slovenija, Fakulteta za Gradbeništvo, Prometno Inženirstvo in Arhitekturo, Svibanj 2016
3. Ștefan-Marius Buru: Advanced analysis of steel–concrete composite structures, Technical University of Cluj-Napoca, Romania, Faculty of Civil Engineering, 2016
4. Ioana Vasilica Marchis: Advanced Nonlinear Analysis of Frames Composed of Tapered Members And Flexible Connections, Technical University of Cluj-Napoca, Romania, Faculty of Civil Engineering, 2016

Currently in commission for disertation of Ana Nanevska, Универзитет „Св. Кирил и Методиј" во Скопје, Институт за земјотресно инженерство и инженерска сеизмологија – ИЗИИС, Скопје (ETA 2025.).

C.2.4 Mentoring of graduate work

1. Josip Botica: Glavni projekt poslovno-stambene zgrade br. 15A u ulici Ravnice u Omišu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2023
2. Jure Drlje: Glavni projekt dogradnje i uređenja luke otvorene za javni promet Srebreno, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2023
3. Mario Filipović: Glavni projekt poslovno-stambene zgrade br. 20; k.o. Split, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2023
4. Mario Žigo: Centar urbane kulture Sinokoša – Glavni projekt (dilatacija A), University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2023
5. Mirko Kežić: Projekt konstrukcije i vodovoda i kanalizacije stambene građevine, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2023
6. Anđela Čavčić: Glavni projekt stambene zgrade u naselju Vitrenjak, Zadar, Zgrada 2, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2022
7. Anđela Kovačević: Glavni projekt stambene zgrade u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2022
8. Ivan Tadić: Fire analysis of RC columns: Accounting for realistic (variable) axial load by modelling a larger part of the structural system, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2022
9. Marko Rogulj: Požarna analiza armirano betonskih stupova: utjecaj različitih parametara na konačni proračun otpornosti na požar, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2022
10. Katarina Buljan: Građevinski projekt vile Zorica u Sevidu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2022
11. Nikolina Barać: Glavni projekt stambene zgrade u naselju Vitrenjak, Zadar, Zgrada 1, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2022
12. Ana Vukadin: Glavni projekt stambene zgrade u Makarskoj, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2021
13. Karmen Petreković-Dvorščak: Proračun nosive konstrukcije i fizikalnih svojstava armiranobetonske stambene zgrade, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2021
14. Marin Čavar: Glavni projekt stambene zgrade, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2021
15. Alen Babić: Glavni projekt poslovno-stambene građevine u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2020
16. Anja Musulin: Glavni projekt stambene zgrade u Omišu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2020
17. Jure Bašković: Glavni projekt stambene zgrade u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2020
18. Marijana Baotić: Glavni projekt poslovno-stambene građevine u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2020
19. Stefani Brekalo: Glavni projekt rekonstrukcije župne crkve Proroka Ilije u Kruševu, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2020
20. Anthony Pribičević: Glavni projekt stambene zgrade u Splitu, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2019
21. Lucija Lasić: Glavni projekt stambene zgrade u Splitu, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2019
22. Anđela Mandić: Glavni projekt vijadukta „Izvor Jadra“, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2019
23. Ivan Baričević: Idejni projekt novog stadiona „ANG“ Split, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2019.
24. Martina Jukić: Concrete edge failure of headed stud anchor after fire exposure: 3D finite element study University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2019
25. Josipa Kekez: Glavni projekt poslovno-stambene zgrade u ulici Put Brodarice u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2019

26. Marina Lovrić: Glavni projekt poslovno-stambene zgrade u ulici Put Brodarice u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2019
27. Lucija Lasić: Glavni projekt stambene zgrade u Splitu, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2019
28. Ana Kovačušić: Poslovno-proizvodna armiranobetonska montažna hala, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2018
29. Ela Jakšić: Glavni projekt armirano betonskog hotela „TUI Magic Liffe“, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2018
30. Marin Matan: Odgovornosti i obveze za nedostatke u gradnji, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2018
31. Tomislav Dunđer: Glavni projekt stambeno poslovne zgrade u Splitu, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2018
32. Hrvoje Vučko: Otpornost armiranobetonskog stupa izloženog djelovanju povišene temperature: 3D studija konačnim elementima, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2018
33. Ante Bilač: Proračun stambenog objekta, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2017
34. Marin Brkić: Proračun stambenog objekta, University of Mostaru, Faculty of Civil Engineering, Architecture and Geodesy, 2017
35. Davor Bušić: Analiza primarne podgrade tunela Orgus-sjever, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2017
36. Gordana Dagelić: Sigurnost i zaštita na radu tijekom izvođenja radova na gradilištu „Energetska obnova ovojnice zgrade Gradske uprave Grada kaštela“, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2017
37. Ivan Mijić: Glavni projekt poslovno - stambene zgrade u Ulici Mike Tripala u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2017
38. Toni Mušura: Glavni projekt stambene zgrade u ulici Brzet u Omišu, Fakultet Građevinarstva, Arhitekture i Geodezije, 2017
39. Jurica Šilović: Glavni projekt stambene zgrade u turističkom naselju Brzet, Omiš, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2017
40. Gordan Domić: Proračun rasponske konstrukcije mosta Tara 1 lijevo, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2016
41. Ljubica Matijašević: Proračun rasponske konstrukcije mosta Tara 2 desno, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2016
42. Marita Dražić: Glavni projekt stambene zgrade u ulici Frana Supila u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2016
43. Ivan Gabrić: Proračun lukobrana marine u Segetu Donjem, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2016
44. Gabrijela Grozdanić: Glavni projekt trgovačkog centra u Trogiru, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2016
45. Ana Kuduz: Glavni projekt stambene zgrade u Omišu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2016
46. Andrea Đerek: Discrete optimum design of cable-stayed bridges (Optimalni diskretni dizajn ovješenih mostova), University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2015
47. Ante Galiot: Glavni projekt stambeno-poslovne zgrade u ulici Velimira Terzića u Splitu, Varijanta polumontažna izvedba (Main design of the residental-buisness building in Velimir Terzić street in Splitu, Variant precast) University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2015
48. Frane Jelavić: Luka otvorena za javni promet lokalnog značaja Stubalj, Općina Bilice, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2015
49. Marin Jukić: Glavni projekt stambeno-poslovne zgrade u ulici Mejaši u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2015
50. Gorana Šarić: Glavni projekt stambeno-poslovne zgrade u ulici Velimira Terzića u Splitu, Varijanta monolitna izvedba, Faculty of Civil Engineering, Architecture and Geodesy, 2015
51. Petar Lukić: Glavni projekt stambeno-poslovne zgrade Arija u ulici Petra Svačića u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2015. (Main design of the residental-buisness building Arija in Petar Svačić's street in Split)

52. Božena Džolić: Glavni projekt nadvožnjaka preko autoceste, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2014 (Main design of the overpass above highway)

53. Sanja Alajbeg: Glavni projekt stambeno-poslovne zgrade u ulici Velimira Terzića u Splitu, Zgrada 1, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2014. (Main design of the residental-buisness building in Velimir Terzić street in Splitu, Building 1)

54. Josipa Budimir: Glavni projekt stambeno-poslovne zgrade u ulici Velimira Terzića u Splitu, Zgrada 2, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2014. (Main design of the residental-buisness building in Velimir Terzić street in Splitu, Building 2)

55. Karmen Karabatić: Glavni projekt stambeno-poslovne zgradeU ulici Velimira Terzića u Splitu, Fortuna, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2014. (Main design of the residental-buisness building in Velimir Terzić street in Splitu, Fortuna)

56. Jela Znaor: Glavni projekt stambene zgrade Frankfurtu – Varijanta beton, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2014. (Main design of the residental building in Frankfurt – variant concrete)

57. Nikolina Perišić: Generiranje mreže konačnih elemenata za prostorne (3D) probleme, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2014. (Finite elementh mesh generation for spatial (3D) problems)

58. Nenad Klarić: Projekt rekonstrukcije stare kamene kuće u Rogoznici, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2014. (Reconstruction design of old stone house in Rogoznica)

59. Hrvoje Balić: Glavni projekt planinarskog doma „Sv. Jure", University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2013. (Main design of the mountain hut "St. Jure")

60. Ivan Popović: Glavni projekt tunela „Stražina - sjever", University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2013. (Main design of tunnel „Stražina - sjever")

61. Linda Obradović: Idejni projekt 60-katnog hotela, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2013. (Preliminary design of 60-storey hotel)

62. Nikola Majstrović: Projekt rekonstrukcije stare kamene kuće, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2013. (Reconstruction design of old stone house)

63. Klaudija Jurina: Kaštel Vitturi – Projekt rekonstrukcije, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Fortification Kaštel Vitturi - Repairement design)

64. Ivona Karamatić: Glavni projekt stambeno-poslovne zgrade u ulici Alojzija Stepinca u Splitu – Varijanta 1, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Main design of the residental-buisness building in Alojzije Stepinac street in Splitu – Variant 1)

65. Ivana Miletić: Glavni projekt stambeno-poslovne zgrade u ulici Alojzija Stepinca u Splitu – Varijanta 2, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Main design of the residental-buisness building in Alojzije Stepinac street in Splitu – Variant 2)

66. Marin Milin: Glavni projekt stambeno-poslovne zgrade u ulici Alojzija Stepinca u Splitu – Varijanta 3, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Main design of the residental-buisness building in Alojzije Stepinac street in Splitu – Variant 3)

67. Marko Žarković: Glavni projekt stambeno-poslovne zgrade u ulici Alojzija Stepinca u Splitu – Varijanta 4, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Main design of the residental-buisness building in Alojzije Stepinac street in Splitu – Variant 4)

68. Romić Tajana: Projekt uređenja okoliša vidikovca Sv. Jure u Solinu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Landscaping design of the sigtseeing point St. Jure in Solin)

69. Pavo Perković: Varijantno rješenje nosive konstrukcije sportske dvorane, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Variant Solution of Bearing Structure Sport Hall)

70. Ivan Baričević: Skladišno uredski prostor: ˝Zagorje gradnja˝, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2012. (Warehouse and office building: ˝Zagorje gradnja")

71. Ćiril Škugor: Glavni projekt stambeno-poslovne Zgrade „Sućidar" u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, 2011 (The main design of residential-commercial building "Sućidar" in Split)

72. Ivana Nimac: Glavni projekt poslovno-stambene zgrade Uglovnica u Splitu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, (VII/I), 2011 (The main design of residential-commercial building "Uglovnica" in Split)

73. Matilda Colić: Glavni projekt trgovačkog centra „Vrbani III" u Zagrebu, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, (VII/I), 2011 (The main design of shopping mall „Vrbani III" in Zagreb)

74. Neda Žderić: Idejni projekt mosta Split - Čiovo, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, (VII/I), 2011 (The preliminary design of bridge between Split and Čiovo)

75. Goran Ćurković: Glavni projekt dogradnje osnovne škole Stobreč, University of Split, Faculty of Civil Engineering, Architecture and Geodesy, (VII/I), 2011. (The main project of upgrading of the primary school Stobreč)

76. Ivan Jelavić Šako: Glavni projekt poslovno-stambene zgrade Uglovnica na križanju Velebitske i Bruna Bušića – varijanta 2, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2011. (The main design of residential-commercial building "Uglovnica" in Split – variant 2)

77. Jakov Šarić: Glavni projekt poslovno-stambene zgrade Uglovnica na križanju Velebitske i Bruna Bušića – varijanta 1, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2011. (The main design of residential-commercial building "Uglovnica" in Split – variant 1)

78. Tereza Munitić: Idejni projekt 50-katnog hotela, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The preliminary design of 50-storey hotel)

79. Božena Novaković: Glavni projekt osnovne škole Ninčevići, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The main design of primary school Nincevici)

80. Ivna Bečić: Glavni projekt stambene zgrade Kuprić u Imotskom, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The main project of a residential building Kuprić in Imotski)

81. Marijana Pavičić: Glavni projekt stambene zgrade Bandcom u Makarskoj, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The main project of a residential building Badcom in Makarska)

82. Marijan Babić: Glavni projekt tunela Kozjak, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The main design of the tunnel Kozjak)

83. Marina Medić: Glavni projekt trgovačkog centra Supernova u Zagrebu – Varijanta 1, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The main design of shopping center Supernova Zagreb - Variant 1)

84. Tomislav Lovrić: Glavni projekt trgovačkog centra Portanova u Osijeku – Varijanta 1, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The main design of shopping center Portanova Osijek - Variant 1)

85. Ivan Ivandić: Glavni projekt trgovačkog centra Portanova u Osijeku – Varijanta 2, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010 (The main design of shopping center Portanova Osijek - Variant 2)

86. Damir Pivac: Glavni projekt stambene građevine ″Kuprić″ u Imotskom, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2010. (The main project of a residential building Kuprić in Imotski)

87. Ivona Galić: Projekt podvožnjaka ispod željezničke pruge u mjestu Šurmanci, University of Mostar, Faculty of Civil Engineering, (VI/I), 2009 (The design of underpass beneath the railroad tracks in village Šurmanci)

88. Davor Galantić: Idejni projekt i statički proračun rasponske konstrukcije, University of Mostar, Faculty of Civil Engineering, (VII/I), 2009 (Conceptual design and structural analysis of bearing structure)

89. Ivan Bandić: Glavni projekt stambeno-poslovne građevine u Imotskom, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2009 (The main design of a residential-commercial building in Imotski)

90. Jure Pešo: Glavni projekt polumontažne skladišne hale, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2009 (The main design of semi-prefabricated warehouse)

91. Milan Tudor: Glavni projekt polumontažne skladišne hale, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2009 (The main design of semi-prefabricated warehouse)

92. Tomislav Pupić – Bakrač: Glavni projekt osnovne škole Ninčevići, Faculty of Civil Engineering and Architecture, (VII/I), 2009 (The main design of primary school Nincevici)

93. Toni Pudar: Idejni projekt poslovnog tornja - Varijanta 1, Faculty of Civil Engineering and Architecture, (VII/I), 2009 (Conceptual design of an office tower - Variant 1)

94. Stipe Mršo: Idejni projekt poslovnog tornja - Varijanta 2, Faculty of Civil Engineering and Architecture, (VII/I), 2009. (Conceptual design of an office tower - Variant 2)

95. Ivana Bošković: Glavni projekt stambene zgrade u Okrugu Gornjem - dilatacija 3, Faculty of Civil Engineering and Architecture, (VII/I), 2009. (The main design of a residential building in Okrug Gornji - Joint 3)

96. Ante Sunara: Glavni projekt stambene zgrade u Okrugu Gornjem - dilatacija 4, Faculty of Civil Engineering and Architecture, (VII/I), 2009. (The main design of a residential building in Okrug Gornji - Joint 4)

97. Danijel Torlić: Glavni projekt osnovne škole ”Neviđani”, otok Pašman, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of primary schools "Nevidjane", island Pasman)

98. Marija Sipina: Program kontrole kvalitete betona za polumontažni betonski nadvožnjak, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (Program quality control of concrete for semi-prefabricated concrete overpass)

99. Jelena Džeko: Rekonstrukcija mostne konstrukcije gata marine Špinut u Splitu, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (Reconstruction of bridge construction in the marina pier Špinut in Split)

100. Berislav Frua: Glavni projekt stambene zgrade K4, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of the residential building K4)
101. Matko Mrše: Glavni projekt stambene građevine u Splitu – Vila 2, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of the residential building in Split - Villa 2)
102. Tomislav Hrsto: Glavni projekt stambene građevine u Splitu – Vila 1, University of Split, Faculty of Civil Engineering and Architecture, VII/I, 2008. (The main design of the residential building in Split - Villa 1)
103. Daniela Bandić: Glavni projekt sportske dvorane OŠ Stobreč, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of Sports Hall of Elementary School Stobreč)
104. Petar Grubišić: Glavni projekt industrijske hale – Varijanta „Mucić“, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of industrial hall - Variant "Mucić")
105. Antonio Čupić: Glavni projekt industrijske hale – Varijanta „Lavčević“, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of industrial hall - Variant "Lavčević")
106. Ana Alagić: Glavni projekt trgovačkog centra, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of shopping mall)
107. Jelena Kvasina: Glavni projekt stambene građevine u Solinu, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of the residential building in Solin)
108. Jakov Božinović: Glavni projekt stambene građevine u Vodicama, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2008. (The main design of the residential building in Vodice)
109. Monika Anđelić: Idejni projekt i statički proračun nadvožnjaka, University of Mostar, Faculty of Civil Engineering, (VII/I), 2007. (The conceptual design and structural analysis of overpass)
110. Damir Lončar: Projekt uređenja parcele s ogradnim zidovima, University of Mostar, Faculty of Civil Engineering, (VI/I), 2007. (The design of landscapeing with surrounding walls)
111. Stipe Romac: Glavni projekt stambene građevine u Imotskom (varijanta 1), University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2007. (The main design of the residential building in Imotski – variant 1)
112. Rafael Zovko: Glavni projekt stambene građevine u Imotskom (varijanta 2), University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2007. (The main design of the residential building in Imotski – variant 2)
113. Iva Rebić: Glavni projekt stambeno-poslovne zgrade Sućidar, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2007. (The main design of residential-commercial building "Sućidar")
114. Tomislav Elpeza: Idejno rješenje modularnog sustava za obitavanje u podmorju, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2007. (The conceptual design of a modular system for the offshore domicile)
115. Diana Baričević, Glavni projekt upravne zgrade uređaja za pročišćavanje otpadnih voda Divulje, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2006. (The main design of the administrative building of wastewater treatment plant Divulje)
116. Marko Mijić: Glavni projekt stambeno-poslovne građevine u Metkoviću, varijanta 2, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2006. (The main design of the residential building in Metković – variant 2)
117. Stipe Žuljević-Mikas: Glavni projekt stambeno-poslovne građevine u Metkoviću, varijanta 1, University of Split, Faculty of Civil Engineering and Architecture, (VII/I), 2006. (The main design of the residential building in Metković – variant 1)
118. Toni Kapetanović: Glavni projekt zgrade s rešetkama u okviru uređaja za pročišćavanje otpadnih voda Divulje, Faculty of Civil Engineering and Architecture University of Split, (VII/I), 2006. (The main design of the screen building of wastewater treatment plant Divulje)
119. Ivana Sarajčev: Glavni projekt župnog pastoralnog centra Resnik, Faculty of Civil Engineering and Architecture University of Split, (VII/I), 2005. (The main design of the Parish Pastoral Center Resnik)
120. Vlatko Miličević: Glavni projekt viadukta Majdan, University of Mostar, Faculty of Civil Engineering, (VII/I), 2005. (The main design of viaduct Majdan)
121. Zoran Mustić: Glavni projekt poslovno-stambene građevine, Faculty of Civil Engineering and Architecture University of Split, (VII/I), 2004. (The main design of a residential-commercial building)
122. Željko Soldo: Glavni projekt poslovno-stambene građevine, University of Mostar, Faculty of Civil Engineering, (VI/I), 2001. (The main design of a residential-commercial building)
123. Robert Sopta: Glavni projekt nadstrešnice, University of Mostar, Faculty of Civil Engineering, (VI/I), 2001. (The main design of the shelter)

C.3 PROFESSIONAL WORK

C.3.1 Published professional papers

(i) Professional papers published in international journals

1. **Harapin, Alen**; Ostojić Škomrlj, Nives; Ćubela Dragan: A Case Study on Construction Technology for the Reinforced Concrete Dome of the Višnjik Sports Hall, Zadar, Croatia, International Review of Civil Engineering (IRCE), 9 (2018), 4; 131-140; doi:10.15866/irece.v9i4.14882
2. Bojanić, D.; Gotovac, B.; **Harapin, A**.: Design Solution of the Tunnel "Komorjak-north" // Proceedings of 6th International Symposium of Tunnels and Underground Structures in SEE / Kolić, Davorin (ur.)., Split: ITA Croatia, 2016. str. 8-18
3. Bojanić, D., Bojanić, T., **Harapin, A.:** *"Design Solution of the Tunnel "Jurin kuk"",* International Review of Civil Engineering, Praise Worthy Prize S.r.l., No 4 (3), July 2012.

(ii) Professional papers published in national journals

1. Radnić, J., **Harapin, A**., Smilović, M., Grgić, N., Glibić, M.: *"Statička i dinamička analiza starog kamenog mosta u Mostaru"*, Građevinar 64(8), p. 655-665, 2012. (Static and dynamic analysis of the old stone bridge in Mostar) (In Croatian)
2. Radnić, J., Matešan, D., **Harapin, A.:** *"Utjecaj krutosti betonskih greda na razdiobu momenata savijanja u pločama",* Ceste i mostovi, No 6, str. 6-12, Zagreb, 2008. (Influence of the stiffness of concrete beams on the distribution of bending moments in slabs) (In Croatian)
3. Radnić J., **Harapin A.** Smilović M.: *"Način armiranja i duktilnost betonskih presjeka"*, Ceste i mostovi, No 4, p. 12-24, Zagreb, 2008. (Method of reinforcement and ductility of concrete section) (In Croatian)
4. Bojanić, D., **Harapin, A.**, Bojanić, T.: *"Projektno rješenje tunela Jurin kuk"*, Građevinar 59 (5), p. 413-425, 2007. (Design solution for the Jurin kuk tunnel) (In Croatian)
5. Radnić J., **Harapin A.**, Smilović M.: *"Pješački drveni most u Trogiru"*, Građevinar 59 (4), p. 319-325, 2007. (Wooden pedestrian bridge in Trogir) (In Croatian)
6. Radnić J., **Harapin A.**: *"Proračun eksploatacijskih naprezanja pravokutnih armiranobetonskih presjeka",* Građevinar 46 (9), p. 531-537, 1994. (Calculation of exploitation stresses of rectangular reinforced concrete sections) (In Croatian)

(iii) Professional papers published in proceedings of the international conference

1. Radnić J., **Harapin A.,** Smilović M.: "Concrete Girder Bridges with Long Prefabricated Girdes", 3rd Central European Congress on Concrete Engineering Innovative, Visegrád, Hungary, september 2007.
2. **Harapin A**., Ćubela D., Bevanda L., Jurišić M., Rako I., Miloloža G., Dujlović D.: *"Calculation of Formwork and Scaffold for Reinforced Concrete Dome Višnjik Sport Hall in Zadar"*, 7th International Conference on Organization, Technology and Management in Construction, Zadar, on CD, september 2006.
3. **Harapin A**., Ćubela D., Bevanda L., Jurišić M., Rako I., Rejo R.: *"Building Tecnology for Reinforced Concrete Dome Višnjik Sport Hall in Zadar"*, 7th International Conference Organization, Technology and Managmen in Construction, Zadar, on CD, september 2006.
4. Radnić J. i dr.: *"Some Engineering Structures on the Adriatic Highway from Zadar to Split"*, Zbornik 25. zborovanja gradbenog konstruktorjev Slovenije, Rogoška Slatina, Slovenija, str. 121-132, 2003.

(iv) Professional papers published in proceedings of the national conference

1. J. Radnić, i dr.: *"Neke građevine na autocesti Zagreb – Split – Dubrovnik od Zadra do Biska"* Zbornik radova, Sabor hrvatski graditelja, Cavtat, str. 517-531, travanj, 2004. (Some bridges on the highway Zagreb - Split - Dubrovnik from Zadar to Bisko) (In Croatian)
2. J. Radnić i dr.: *"Projektna rješenja građevina na Jadranskoj autocesti od Zadra do Dugopolja"* Hrvatsko društvo građevinskih konstruktora "Zlatni Sabor", Zagreb, str. 217-228, prosinac, 2003. (The design of the bridges on the Adriatic highway from Zadar to Dugopolje) (In Croatian)
3. J. Radnić i dr.: *"Građevine na Jadranskoj autocesti od Zadra do Splita"* Zbornik priopćenja *"Treći Hrvatski kongres o cestama"*, Trogir, str. 234-243, listopad, 2003. (Bridges on the Adriatic highway between Zadar and Split) (In Croatian)
4. Radnić J., Smoljanović M., **Harapin A**., Nikolić Ž., Matešan D., Herak Marović V., Nižetić, Đ., Šarić V., Markota L., Nižetić V., Brzović D., Šimunović T.: *"Neke građevine na jadranskoj autocesti, dionice: Zadar 1 - Zadar 2, Zadar 2 - Benkovac, Šibenik - Vrpolje (II. poddionica), Vrpolje - Prgomet i Prgomet - Dugopolje"*, Zbornik radova znanstveno - stručnog savjetovanja "Objekti na

autocestama", Plitvice, str. 115-126, 2003. (Bridges on the Adriatic highway, sectors: *Zadar 1 - Zadar 2, Zadar 2 - Benkovac, Šibenik - Vrpolje (II. poddionica), Vrpolje - Prgomet i Prgomet - Dugopolje*) (In Croatian)

5. Radnić J., **Harapin A**., Matešan D., Trogrlić B., Poljak Z.,: *"Vijadukt "Severinske drage"*, Zbornik radova znanstveno - stručnog savjetovanja "Objekti na autocestama", Plitvice, str. 127-132, 2003. (*Viaduct "Severinske drage*) (In Croatian)
6. Radnić J., Herak-Marović V., Smoljanović M., Nikolić Ž., Šarić V., Matešan D., Markota L., **Harapin A**., Nižetić V.: *"Rješenje objekata na Jadranskoj autocesti od Šibenika do Splita"*, V Opći Sabor HDGK, Brijunski otoci, str. 263-270, 2001. (Solution of bridges on the Adriatic highway from Šibenik to Split) (In Croatian)
7. Radnić J., **Harapin A.,** Domazet A.: *"Ekspertiza jednog nosača valobrana marine 'Frapa' - Rogoznica"*, Zbornik radova četvrtog općeg sabora hrvatskih građevinskih konstruktera, Brijunski otoci, str. 497-504, 1998. (Expertise of one breakwater girder in marina 'Frapa' - Rogoznica) (In Croatian)
8. Radnić J., **A. Harapin**, B. Trogrlić, I. Boko, L. Bašić, Ž. Reljanović, M. Lovrinčević, N. Uvodić: *"Upute o načinu sanacije potresom oštećenih kuća na Dubrovačkom primorju"*, Zbornik radova četvrtog općeg sabora hrvatskih građevinskih konstruktera, Brijunski otoci, str. 489-496, 1998. (Instructions on how to repair quake-damaged houses in Dubrovnik Riviera) (In Croatian)
9. Radnić J., **A. Harapin**, I. Rako, Z Botić: *"Projekt konstrukcija nekih zgrada koje se trenutno grade u Splitu"*, Zbornik radova četvrtog općeg sabora hrvatskih građevinskih konstruktera, Brijunski otoci, str. 301-308, 1998. (Design of construction of some buildings that are currently being built in Split) (In Croatian)
10. Radnić J., **A. Harapin**, L. Bašić: *"Idejno rješenje mosta preko Krke na autocesti Split-Zagreb"*, Zbornik radova četvrtog općeg sabora hrvatskih građevinskih konstruktera, Brijunski otoci, VI 1998., str. 163-170. (Conceptual design of the bridge over river Krka on the highway Zagreb-Split) (In Croatian)
11. Radnić J., V. Herak-Marović, **A. Harapin**, M. Smoljanović, V. Šarić, I. Rako, Z Botić: *"Idejno rješenje većih mostova na jadranskoj autocesti sektor Zadar-Split"*, Zbornik radova četvrtog općeg sabora hrvatskih građevinskih konstruktera, Brijunski otoci, str. 155-162, 1998. (Conceptual design of major bridges along the Adriatic highway sector Zadar-Split) (In Croatian)
12. Radnić J., V. Herak-Marović, **A. Harapin**, M. Smoljanović, V. Šarić, I. Rako, Z Botić: *"Idejno rješenje vijadukata, podvožnjaka i nadvožnjaka na jadranskoj autocesti sektor Zadar-Split"*, Zbornik radova četvrtog općeg sabora hrvatskih građevinskih konstruktera, Brijunski otoci, str. 146-154, 1998. (Conceptual design of viaducts, underpasses and overpasses along the Adriatic highway sector Zadar-Split) (In Croatian)
13. Radnić J., **A. Harapin**, L. Bašić: *"Idejno rješenje mosta preko Čikole na autocesti Split-Zagreb"*, Zbornik radova četvrtog općeg sabora hrvatskih građevinskih konstruktera, Brijunski otoci, str. 139-146, 1998. (Conceptual design of the bridge over river Čikola on the highway Zagreb-Split) (In Croatian)

C.3.2 Designs, studies and analysis

Only the most important designs are listed

- Pontoon bridge across "Maslinica ždrilo" (competition project) 1992, function: designer-assistant
- Maslinica bridge (competition project) 1992, function: designer-assistant
- Bridge on Balkanska road in Split (main and final design) 1992, function: designer-assistant
- Bridge on crossroad: Mravince road and Split bypass (final design) 1992, function: designer-assistant
- The Trogir shore (final design) 1994, function: designer-assistant
- Bridge over river Čikola near Drniš (final design) 1994, function: designer-assistant
- Sewer canal on Split bypass (final design of structure) 1996, function: designer-assistant
- Hydrotechnical tunnel Stupe (preliminary design) 1996, function: designer-assistant
- Residential and commercial building "Lavčević – east wing" (design of structures)1996, function: designer-assistant
- Residential and commercial building "Fregata" (design of structures) 1996, function: designer-assistant
- Bridges, Viaducts, Overpasses and Underpasses on highway road Zagreb-Split-Dubrovnik, section: Zadar-Split, (preliminary design) 1996-1997, function: designer-assistant
- Bridge on local road Čitluk-Čapljina (main design of structures) 1996-1997, function: structural designer
- Mortar production plant "Renova Putz" in Plano, Trogir (final design) 1998, function: structural designer
- Restoration of earthquake damaged single-family houses on Dubrovnik coast (about 30 final designs) 1998, function: structural designer
- Storage hall for plaster "Renova Putz" in Plano, Trogir (final design) 1999, function: structural designer
- Hydrotechnical tunnel Stupe (main design of structure), 1999, function: structural designer
- Residential and commercial building "Uglovnica" on the crossroad between Velebitska street and Bruna Bušića street, Split (main design of structure) 1999, area cca 10.000 m2, function: structural designer
- Residential and commercial building "Auto servis Dalić, Livno" (main design of structure) 2000, function: structural designer
- Sports Hall of Primary School Dugopolje (main design of structure) 2000, function: structural designer
- Viaduct "Vinokop" on highway road Zagreb-Split-Dubrovnik, (main design of structure), 2002, function: structural designer
- Residential and commercial building "BANDCOM nekretnine", Makarska (main design of structure) 2003, area cca 3.500 m2, function: structural designer

- Road tunnel “Dubrave” on highway road Zagreb-Split-Dubrovnik, (preliminary, main and final design), 2003, function: structural designer
- Hydrotechnical tunnel “Čiovo”, 2003, (preliminary, main and final design) function: structural designer
- Commercial building Brodomerkur-Manadalina, Šibenik, (main design of structure), 2003, area cca 3.500 m^2, function: structural designer
- Waste Water Treatment Plant (WWTP) “Divulje” – Ia phase – plant facilities, PS (Pump Station) “Divulje-uređaj” & PS “Slanac”, (preliminary and main design), 2004, function: project coordinator and structural designer
- Road tunnel “Mravince-west” on highway road Solin-Sinj, (preliminary, main and final design), 2004, function: structural designer
- Road tunnel “Orgus” on highway road Solin-Sinj, (preliminary, main and final design), 2004, function: structural designer
- Road tunnel “Mačkovac-west” on highway road Solin-Sinj, (preliminary, main and final design), 2005, function: structural designer
- WWTP “Divulje” – Ib phase – plant facilities, (main design), 2005, function: structural designer
- Residential and commercial building Sućidar, Split, (main design), 2006, area cca 1.700 m^2, function: structural designer
- Road tunnel “Klis-Kosa-zapad” on highway road Solin-Sinj, (preliminary and main design), 2006, function: structural designer
- Pumping Station for waste waters “Centar 1”, Obrovac, Project for the protection of foundation pits and pumping station project, 2007, function: structural designer
- Shopping mall Vrbani III, Zagreb, (main design of structures), 2007-2009, area 43.000,00 m^2, function: consultant on design of structures
- Design of communal infrastructure of commercial Zone Murvica-Jug, Poličnik – roads, water supply and sewage system, (preliminary, main and final design), 2008-2011, area about 425.000,00 m^2, function: main designer and structural designer
- Sports hall of Primary school Stobreč, Stobreč, (main design), 2008, area 5.000,00 m^2, function: structural designer
- Shopping mall Portanova, Osijek, (main design), 2008-2011, area about 75.000,00 m^2, function: consultant on design of structures
- Shopping mall SuperNova, Buzin, Zagreb, (main design), 2010, area about 200.000,00 m^2, function: consultant on design of structures
- Hydrotechnical tunnel “Šumetlica”, (main design), 2010, function: structural designer
- Road tunnel “Kozjak”, (preliminary and main design), 2010, function: structural designer
- Road tunnel “Krilo-Jesenice”, (preliminary and main design), 2010, function: structural designer
- The design of connecting road of commercial Zone Murvica-Jug, Poličnik on main road D8, (preliminary, main and final design), 2010-2011, function: main designer and structural designer
- Shopping mall Vrbani III – new project, Zagreb, (main and final design of structures), 2011-2012, area 43.000,00 m^2, function: consultant on design of structures
- TS 110/20(10); 35/20(10) kV „Hrvace“ – I Phase, preliminary, main and work design, 2012-2014, function: structural designer and designer of watersuply and sewage instalations
- Coastal area Podstrana – design of coastal area from hotel Lav to Mutograsa, 2014, preliminary and main design, function: structural designer
- Coastal area Podstrana – design of coastal area from river Žrnovnica estuary to hotel Lav, 2014, preliminary and main design, function: structural designer
- Coastal area Podstrana – St. Martin marina – Podstrana, 2015, preliminary and main design, function: structural designer
- Three faculty building, University campus Split, 2015, designer of watersuply and sewage instalations
- Skladgradnja d.o.o., buisness building – reconstruction, 2015, function: structural designer
- Recostruction and adaptation of student dormitory „Bruno Bušić“ in Split, function: structural designer
- Reconstruction and adaptation of Faculty of Civil Engineering, Architecture and Geodesy and Laboratory in Žrnovnica, 2017-2021, function: designer of watersuply and sewage system
- Reconstruction of observatory on Marjan, 2020-2021, function: structural designer of concrete structures
- Recostruction of Popova Šuma tunnel in Petrinja, 2021-2022, function: structural designer
- Dry ramp on location Brodotrogir k.č. 6203/1 k.o. Trogir, 2021-2022, function: structural designer
- Scientific research center Split, 2022, function: structural designer
- Clinical hospital center Sestre milosrdnice - Clinic for traumatology, the main building renovation project, 2023, function: structural designer

C.3.3 Technical supervision

Only the most important buildings are listed.

- Shopping mall “Mercatone Emezzeta” Kaštel Sućurac, 2002-2003, function: main supervision engineer
- FESB building, II phase, Split, 2005-2007, function: supervision engineer for watersuply and sewage system
- 3 faculty buildnig, University campus, Split, 2008-2010, function: supervision engineer for watersuply and sewage system