

# Curriculum Vitae

By

Professor Ivica Kožar

## Personal data

IVICA, Petar, KOŽAR, male

Scientific reg.code: 146206

August, 22, 1959, born in Opatija, Primorsko-goranska County, Croatia

Croat, citizenship Republic of Croatia

Married to Danila Lozzi-Kožar, two daughters (Petra and Nika)

## *Foreign Languages*

English (writes, speaks, reads)

German (writes, speaks, reads)

Italian (speaks, reads)

## *Position*

Full Professor

Head of Department for computer modeling of materials and structures

University of Rijeka, Faculty of Civil Engineering

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## Education

1974-1978, 1<sup>st</sup> Gymnasium in Rijeka

As an excellent scholar released from compulsory final graduation exam

## *Diploma*

1978-1983, Faculty of Civil Engineering, University of Rijeka; (4.76/5)

Supervisor: Prof.dr. Kruno Tonković, University of Zagreb

Diploma work: "Bridge design"

## *Doctoral Study*

1984-1986, all lectures taken at the Faculty of Civil Engineering, University of Zagreb

1991 degree: doctor of technical mechanics, Faculty of Civil Engineering, University of Zagreb

Thesis: "Analysis of Stability of Plates and Shells"

Supervisor: Prof.dr. Josip Dvornik

Committee:

Prof.dr. Josip Dvornik, Faculty of Civil Engineering, University of Zagreb

Prof.dr. Vedran Žanić, Faculty of Mechanical and Naval Engineering, University of Zagreb

Prof.dr. Zvonimir Sabljak, Faculty of Civil Engineering, University of Rijeka

#### *Postdoctoral Study*

- 1994, 6 months at Ecole Polytechnique Federale de Lausanne, DGC, LSC, CH-1015 Lausanne, Suisse, Swiss government scholarship for young professors, field of work: large displacements and large rotations in continuum mechanics, supervisor Prof. Adnan Ibrahimbegović
- 1995, 6 months at Universität Stuttgart, Institut für Werkstoffe im Bauwesen, Pfaffenwaldring 4, 70550 Stuttgart, Deutschland, field of work: nonlinear theory of materials (microplane theory of materials), supervisor Prof. Joško Ožbolt
- 1996, 3 months at Universität Stuttgart, Institut für Werkstoffe im Bauwesen, Pfaffenwaldring 4, 70550 Stuttgart, Deutschland, field of work: nonlinear theory of materials (microplane theory of materials), supervisor Prof. Joško Ožbolt
- 1998, 3 months at Universität Stuttgart, Institut für Werkstoffe im Bauwesen, Pfaffenwaldring 4, 70550 Stuttgart, Deutschland, field of work: nonlinear theory of materials (microplane theory of materials), supervisor Prof. Joško Ožbolt

#### **Honors**

- 1982 – "Best student" award at University of Rijeka
- 1987 – CISM Scholarship for attending Center of Mechanical Sciences Udine Italy
- 1993 – "Jeunes Professeurs", Swiss National Science Foundation scholarship for young professors (1 out of 2 scholarships for whole Eastern Europe)

#### *Invited lectures*

- "Tensor damage model for concrete materials" Institut für Werkstoffe im Bauwesen, Universität Stuttgart, Germany
- "Microplane material model for concrete materials" Faculty of Mechanical Engineering University of Maribor, Slovenia
- NATO Advanced Research Workshop "*Multi-physics and Multi-scale Computer Models in Non-linear Analysis and Optimal Design of Engineering Structures under Extreme Conditions*", Bled, Slovenia, 13-17.06.2004.
- NATO Advanced Research Workshop "*Extreme Man-Made and Natural Hazards in Dynamics of Structures*", Opatija, Croatia, 28.5-1.06.2006.
- Summer school "Finite element method" organised by Faculty of Mining, Mechanical and Civil Engineering, University of Tuzla, Bosnia

## Career outline

- 1983 - Assistant Lecturer in Informatics at Faculty of Civil Engineering, University of Rijeka
- 1987 - Assistant Lecturer in Bridge Design at Faculty of Civil Engineering, University of Rijeka
- 1992 - Assistant Professor in Technical Mechanics at Faculty of Civil Engineering, University of Rijeka
- 1996 - Associated Professor in Technical Mechanics at Faculty of Civil Engineering, University of Rijeka
- 2002 – Full Professor in Technical Mechanics

## Teaching

During my carrier I have held various courses at undergraduate (Mechanics, Resistance of materials, Application of computers in civil engineering) and graduate level (Bridge design, Modeling with computer). There is in course change of curricula at Croatian universities due to adoption of Bologna process and there will be change in my courses

## Courses at Faculty of Civil Engineering University of Rijeka

### Currently held courses until 2009

#### *Under-graduate courses*

- Building physics (15 hours, optional course)

#### *Graduate courses*

- Theory of plates and shells (30 hours, optional course)
- Bridge design (30 hours, compulsory course)

#### *Doctoral courses*

- Finite element method (45 hours, compulsory course)

#### Courses starting from autumn 2008

##### *Under-graduate courses*

- Building physics (15 hours, optional course)

##### *Graduate courses*

- Building physics (15 hours, optional course)
- Computer modeling (45 hours, compulsory course)
- Introduction into finite elements (30 hours, optional course)
- Inverse modeling for structural testing (30 hours, optional course)

##### *Doctoral courses*

- Finite element method (30 hours, optional course)
- Numerical methods (45 hours, compulsory course)

#### Courses at Faculty of Medicine University of Rijeka

##### *Doctoral courses*

- Basics of scientific computing (together with Prof. Željko Jeričević – University of Rijeka and Prof. Roko Andričević – University of Split) (10 hours each, optional course)

## Students

I have been supervisor for more than 10 graduation thesis and from some of them conference papers have been published. I have started international exchange of students on my Faculty as I have been co-supervisor (together with Prof.Dr.-Ing. Silvia Weber) on graduation thesis of Stefania Lukezic from Hochschule für Technik University of Applied Sciences in Stuttgart, Germany. She spent a month on the Department and used my computer program DARK as the basis of her thesis.

##### *Supervisor for master's thesis*

- Tatjana Gere (Potočnik) 2005 "Finite strip method and application on glass plates" Faculty of Civil Engineering University of Rijeka
- Tino Medvidović 2007 "Comparison of measured and predicted dynamic parameters of long flexible structures" Faculty of Civil Engineering University of Rijeka
- Zoran Šušulić (under approval – tentative title) "Analysis of stability of ancient masonry buildings" Faculty of Civil Engineering University of Rijeka

*Co-supervisor for master's thesis*

- Ivana Štimac 2003 "Dynamic analysis of bridges under moving loading" Faculty of Civil Engineering University of Zagreb

*Co-supervisor for doctor's thesis*

- Ivana Štimac 2006 "Application of influence lines for displacements in damage detection of structures" Faculty of Civil Engineering University of Split
- Silvija Mrakovčić (under progress) Faculty of Civil Engineering University of Zagreb
- Tino Medvidović (under approval – tentative title) "Comparison of measured and predicted dynamic parameters of cable structures" Faculty of Civil Engineering University of Zagreb
- Neira Torić (under approval – tentative title) "Finite strip formulation for moving loading analysis" Faculty of Civil Engineering University of Rijeka

## Research

*International (bilateral) projects financed by foreign partner*

- Germany - Croatia, Institut für Werkstoffe im Bauwesen, Universität Stuttgart: „Simulation of penetration of steel anchor into concrete block“ ("Simulation des Eintreibvorgangs von Setzbolzen in Beton"), 2004 - 2008
- Germany - Croatia, Institut für Werkstoffe im Bauwesen, Universität Stuttgart: „Design of computer program for 3D thermal and humidity analysis“ ("Erstellung eines 3D FE Programms für die Ermittlung der Temperatur- und Feuchteverteilung"), 2003
- Slovenia – Croatia, Faculty of Mechanical Engineering University of Maribor "Damage modeling in engineering materials ", 1998-2000
- Slovenia – Croatia, Faculty of Mechanical Engineering University of Maribor, "Damage initiation and propagation in engineering materials", 2001-2003
- Great Britain - Croatia (ALIS), Department of Civil Engineering University of Glasgow, "Investigation of Damage Evolution in Continuum Modelling of Quasibrittle Materials", 1998-2000

*Scientific projects financed by Croatian Ministry of Science*

- “Long flexible structures: nonlinear modeling with visualisation“, No. 114-0982562-1460, 2006 - ... This project is part of Scientific programme coordinated by Croatian Scientific Institute “Rudjer Bošković”
- “Numerical modeling of quasi-brittle materials“, No. 0114002, 2002-2006
- “Numerical analysis of quasi-brittle materials“, No. 114102, 1997-2001
- “Dynamical analysis of laminated plates under impact loading“, No. 2-11-449, 1993-1996

#### *Technological projects*

- “Influence of moving load on structures“, No. TP-02/0114-02, 2002-2004. This project resulted in computer program DARK that is freely available at <http://www.gradri.hr/~modeliranje> together with instructions in Croatian and German.

## Contacts with industry

#### *Software development*

Only more significant projects with graphic pre- and post-processing are mentioned. If not stated otherwise I was either the principal project coordinator or I planned and coded the entire project.

- Static and dynamic analysis of 2D structures based on finite element method
- Static and dynamic analysis of plates with contact possibilities.
- Static and dynamic analysis of axi-symmetrical shells with non-symmetrical loading based on self-developed finite element
- Geometrically non-linear static analysis of general shells
- Materially non-linear static analysis of 2D concrete structures (under coordination of Prof. Joško Ožbolt from Institute of Civil Engineering Materials University Stuttgart)
- Materially non-linear static analysis of 3D concrete structures (under coordination of Prof. Joško Ožbolt from Institute of Civil Engineering Materials University Stuttgart)
- Automatic design of reinforced concrete structures
- Building physics with thermal energy saving calculations
- Building physics for sound resistance determination in buildings
- Analysis of heat flow in 2D structures
- Automatic design (and drawings) of longitudinal cross sections of various pipes

- Dynamic analysis of 2D structures under the influence of moving loading (DARK <http://www.gradri.hr/~modeliranje> )
- 3D transient analysis of heat flow
- Commercial quality software for design of steel anchors in concrete for various German firms (in collaboration with Prof. Joško Ožbolt).

#### *Engineering projects*

I have participated in many engineering projects that included both design and testing of structures. As head of the Department I am currently supervising and participating in several contracts with industry. Two most significant ones are

- Non-linear dynamic analysis of railway fastenings of SKL type for Croatian Railways. This project is completed but a similar one is under negotiation for Zagreb electric tramway company.
- Determination of tensile forces in structural members from dynamic parameters on Rijeka's swimming pool moving roof (under progress).

## Administrative duties

### *Faculty*

- 1994 – 1996 Vice-dean for scientific research at Faculty of Civil Engineering, University of Rijeka
- 1996 – 1998 Vice-dean for scientific research at Faculty of Civil Engineering, University of Rijeka
- 1998 – 2000 Vice-dean for scientific research at Faculty of Civil Engineering, University of Rijeka
- 2000 – 2002 Dean of Faculty of Civil Engineering, University of Rijeka
- 2002 – 2004 Dean of Faculty of Civil Engineering, University of Rijeka
- Coordinator for TEMPUS, 2003 – 2005 “Restructuring and Updating of Civil Engineering Curriculum”, value of the project: € 302600, joint project between University of Glasgow UK, University of Stuttgart Germany, University of Trieste Italy, Technological Educational Institution of Athens Greece, University of Pecs Hungary, University of Ljubljana Slovenia, Croatian Chamber of Architects and Engineers, University of Zagreb, University of Split, University of Osijek and University of Rijeka, all from Croatia; the project financed installation of video link equipment on Faculty.
- 2004 – 2005 Vice-dean for doctoral studies at Faculty of Civil Engineering, University of Rijeka
- 2004 – 2008 Head of Department for computer modeling of materials and structures at Faculty of Civil Engineering, University of Rijeka
- 2008 – Head of Department for computer modeling of materials and structures at Faculty of Civil Engineering, University of Rijeka

### *University*

- Representative of University of Rijeka in Committee for electronic infrastructure at Croatian Academy of Sciences
- Member of steering committee in SRCE (University Computing Center Zagreb) for introduction of Grid computing in Croatia
- Member of Committee for establishing partnership with Microsoft through introduction of program PiL (Partners in Learning)

### *Ministry*

- Member of the review committee for scientific projects financed by Croatian Ministry of Science in 2006
- Member of Career advancement board for Croatian national agency for high education

### *Current memberships*

- Member of Croatian Society of Structural Engineers
- Member of Croatian Society of Engineers
- Vice-president of Croatian Society for Mechanics
- Member of the Supervision board for Technological and Innovations Center Rijeka
- Member of Editorial board for magazine of Croatian society of engineers "Građevinar"

### *Reviews*

- Reviewer of several books
- Reviewer for magazine "Građevinar", Croatian society of engineers
- Reviewer for magazine "Engineering Modeling", University of Split
- Reviewer for magazine "Građevinski vijesnik", University of Osijek
- Review of new doctoral studies for University of Osijek
- Review of new doctoral studies for University of Split

### *Participation*

- Co-organization (with Prof. Adnan Ibrahimbegović) of NATO Advanced Research Workshop 981641 "*Extreme Man-Made and Natural Hazards in Dynamics of Structures*", Opatija, 28.05.- 01.06.2006.
- Member of scientific committees for several international conferences
- Member of scientific committees for several international conferences
- Chariman at several international conferences