CV Ivan Ćatipović

1 PERSONALIA

Name and surname	Ivan Ćatipović
Academic title	PhD
Year and institution of PhD obtained	2009, University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture (FAMENA), Croatia
Address	Slavka Kolara 85, Velika Gorica
Phone	+385 (0) 91 791 2675
E-mail	**ivan.catipovic@fsb.hr**
Citizenship	Croatian
Date and place of birth	28.08.1977. Split, Croatia

2 EDUCATION

Date	25.11.2009.
Place	Zagreb, Croatia
Institution	University of Zagreb, FAMENA
Title of qualification awarded	PhD
Date	10.07.2002.
Place	Zagreb, Croatia
Institution	University of Zagreb, FAMENA
Title of qualification awarded	dipl. ing. in Naval Architecture

3 AREAS OF EXPERTISE AND RESEARCH INTERESTS

- Ship hydrodynamics: seakeeping, hydrostatics, potential flow, boundary element method, wave loads, response in frequency domain, motions of damaged ship, manoeuvrability.
- Offshore structures: environmental loads, mooring system design and analysis, structural analysis, coupled models of moored vessels in the time domain, dynamics of production risers and highly extensible mooring lines, offshore renewable energy.
- **Structural vibrations: vibration analysis of axisymmetric shell structures (cylindrical and toroidal), influence of rotation and pressure of axisymmetric shells on their natural vibrations**, ship vibrations within hydroelastic analyses.
- Subsea pipelines: design and analyses during installation and exploitation, structural integrity calculations, route preparation.

4 WORK EXPERIENCE

Date	**01 March 2014 – now**
Institution	University of Zagreb, FAMENA, Department of Naval Architecture and Offshore Engineering, Croatia
Position	Assistant professor
Work field	**Vibration analysis of rotating and pressurised shells.** Dynamic behaviour of ships rolling in rough seas. Active control of ship roll using active anti-roll tanks. Towing of damaged ship with influence of flooded water. Experimental investigation of a damages ship during towing. Dynamic and quasi-static response of a towing line. Subsea pipeline installation.
Date	**01 December 2009 – 01 March 2014**
Institution	University of Zagreb, FAMENA, Department of Naval Architecture and Offshore Engineering, Croatia
Position	Senior Assistant
Work field	Dynamics of mooring lines and production risers. Analysis of motions of a moored floating object in the time domain. Hydrodynamics of a damaged ship. Structural integrity assessments of subsea pipelines. Dynamics of a floating crane. Coupled flexural and torsional vibrations of ships.
Date	**01 December 2003 - 01 December 2009**
Institution	University of Zagreb, FAMENA, Department of Naval Architecture and Offshore Engineering, Croatia
Position	Research Assistant
Work field	Research on mobile offshore drilling units. Structural integrity assessments of marine drilling risers. Evaluation of the first and the second order of the wave loads. Hydrodynamics of floating vessels in the frequency domain. Design of mooring systems. Structural analysis of a self-elevated drilling unit.

5 LANGUAGES

MOTHER TONGUE	**Croatian**
Language	**English**
Speaking	Proficient user
Writing	Proficient user

Reading Proficient user

6 TEACHING

(teaching done at University of Zagreb, FAMENA, Department of Naval Architecture and Offshore Engineering)

- since 2014: Postgraduate doctoral study: Loads on offshore structures, Seakeeping and maneuverability of ships.
- since 2014: Postgraduate specialist study: Introduction to offshore structures, Loads on offshore structures, Dynamics of offshore structures, Subsea pipeline design.
- since 2014: Undergraduate study: Ship manoeuvrability, Offshore structures, Ship seakeeping theory.
- since 2004: Undergraduate study: Ship hydrostatics, Ship seakeeping basics.

7 MEMBERSHIPS IN INTERNATIONAL SCIENTIFIC COMMITTEES AND SOCIETIES

- since 2018: member of Committee V.5 - **Special Craft** within **International Ship and Offshore Structures Congress** (ISSC)
- 2012-2018: member (two mandates) of Committee V.4 - **Offshore Renewable Energy** within **ISSC**
- since 2018: member of **The Scientific Council for Maritime Affairs**, Section for Marine Technology, **Croatian Academy of Sciences and Arts** (in croatian: Hrvatska akademija znanosti i umjetnosti - **HAZU**)

8 SUCCESSFUL PROJECT PROPOSALS

- **Wind and sea loads on energy structures – WESLO**, 2017 – 2021; Funding: Croatian science foundation, Republic of Croatia; Project No: IP-11-2013-8658, Host institution: University of Zagreb, FAMENA; Research leader: Hrvoje Kozmar, PhD.
  Main subjects: extreme wind loads on offshore wind turbines, wave and sea current loads on tidal turbines, mooring of offshore renewables.
- **Structural Reliability of Damaged Oil Tanker in the Adriatic Sea – DATAS**, 2014 – 2018; Funding: Croatian science foundation, Republic of Croatia; Project No: IP-11-2013-8658, Host institution: University of Zagreb, FAMENA; Research leader: Joško Parunov, PhD.
  Main subjects: towing of damaged ship, influence of flooded water on damaged ship motions, structural safety assessment of the damaged oil tanker, ship structural design improvement with respect to the most dangerous incident types.
- **Towing Safety of Offshore Structures in Rough Seas**, 2013 – 2014; Funding: University of Zagreb; Host institution: University of Zagreb, FAMENA; Research leader: Nastia Degiuli, PhD.
  Main subjects: towline dynamic and quasi-static response, evaluation of towline tension force, hydrodynamics of towed object in time domain, coupled dynamics model of towing.
- **Dynamics and Loading of Offshore Objects**, 2007 – 2013; Funding: Ministry of Science and Technology, Republic of Croatia; Project No: 120-1201703-1672, Host institution: University of Zagreb, FAMENA; Research leader: Većeslav Čorić, PhD.
  Main subjects: coupled dynamics of moored floating objects, hydrodynamics of vessels in time domain, dynamics of highly extensible polyester mooring lines and production risers, first and second wave loads, wind loads, sea current loads.

- **Dynamics of Vessels and Offshore Objects**, 2002 – 2007; Funding: Ministry of Science and Technology, Republic of Croatia; Project No: 0120040, Host institution: University of Zagreb, FAMENA; Research leader: Većeslav Čorić, PhD.
- Main subjects: hydrodynamics of vessels in frequency domain, dynamics of mobile offshore drilling units, structural response of fixed and self-elevated drilling units.

- **Underwater Drilling in Deep Sea**; Technological Project, 2002 – 2004; Funding: Ministry of Science and Technology Republic Croatia; Project No. TP-054/01Host institution: University of Zagreb, FAMENA; Research leader: Većeslav Čorić, PhD.
  Main subjects: mooring of mobile offshore drilling units, drilling riser design, static and dynamic response of risers, influence of riser tensioners.

9 LIST OF PUBLICATIONS

INTERNATIONAL PEER REVIEWED JOURNAL ARTICLES

1. Ćatipović, Ivan; Hadžić, Neven; Dias, Frédéric; Kozmar, Hrvoje. Computational model of simultaneous wave and sea current loads on tidal turbines. **Ocean Engineering**. Doi: 10.1016/j.oceaneng.2019.04.058.
2. Senjanović, Ivo; Alujević, Neven; Ćatipović, Ivan; Čakmak, Damjan; Vladimir, Nikola; Cho, Dae-Seung. Buckling analysis of toroidal shell by Rayleigh-Ritz method. **Journal of Pressure Vessel Technology of the ASME**. (2019). (prihvaćen za objavljivanje)
3. Rudan, Smiljko; Ćatipović, Ivan; Berg, Richard; Völkner, Svenja; Prebeg, Pero. Numerical study on the consequences of different ship collision modelling techniques. **Ships and Offshore Structures**. (2019). (prihvaćen za objavljivanje)
4. Senjanović, Ivo; Čakmak, Damjan; Alujević, Neven; Ćatipović, Ivan; Vladimir, Nikola; Cho, Dae-Seung. Pressure and rotation induced tensional forces of toroidal shell and their influence on natural vibrations. **Mechanics research communications**. 96 (2019); 1-6.
5. Alujević, Neven; Ćatipović, Ivan; Malenica, Šime; Senjanović, Ivo; Vladimir, Nikola. Ship roll control and power absorption using a U-tube anti-roll tank. **Ocean Engineering**. 172 (2019); 857-870.
6. Ćatipović, Ivan; Uščumlić, Jadranka; Ćustić, Lamia. Optimization of a subsea pipeline route profile with the elimination of free spans. **Journal of Pipeline Systems Engineering and Practice**. 10 (2019), 2: 04019007.
7. Alujević, Neven; Senjanović, Ivo; Ćatipović, Ivan; Vladimir, Nikola. The absence of reciprocity in active structures using direct velocity feedback. **Journal of Sound and Vibration**. 438 (2019); 251-256.
8. Ćatipović, Ivan; Ćorak, Maro; Parunov, Joško; Alujević, Neven. Seakeeping experiments on damaged ship. **Ships and Offshore Structures**. (2018), Doi: 10.1080/17445302.2018.1559911
9. Senjanović, Ivo; Ćatipović, Ivan; Alujević, Neven; Čakmak, Damjan; Vladimir, Nikola. Free in-plane and out-of-plane vibrations of rotating thin ring based on the toroidal shell theory. **Archives of Mechanics**. 70 (2018), 5; 429-455.
10. Senjanović, Ivo; Ćatipović, Ivan; Alujević, Neven; Čakmak, Damjan; Vladimir, Nikola. A finite strip for the vibration analysis of rotating toroidal shell under internal pressure. **Journal of Vibration and Acoustics**, Transactions of the ASME. 141, 021013 (2018), 2. Paper No: VIB-18-1308.
11. Senjanović, Ivo; Alujević, Neven; Ćatipović, Ivan; Čakmak, Damjan; Vladimir, Nikola. Vibration analysis of rotating toroidal shell by the Rayleigh-Ritz method and Fourier series. **Engineering Structures**. 173 (2018); 870-891.
12. Senjanović, Ivo; Ćatipović, Ivan; Alujević, Neven; Vladimir, Nikola; Čakmak, Damjan. A finite strip for the vibration analysis of rotating cylindrical shells. **Thin-walled Structures**. 122 (2018); 158-172.
13. Martić, Ivana; Degiuli, Nastia; Ćatipović, Ivan. Evaluation of the added resistance and ship motions coupled with sloshing using potential flow theory. **Brodogradnja**: časopis brodogradnje i brodograđevne industrije. 67 (2016), 4; 109-122.
14. Martić, Ivana; Degiuli, Nastia; Ćatipović, Ivan. Added resistance in waves of intact and damaged ship in the Adriatic sea. **Brodogradnja**: časopis brodogradnje i brodograđevne industrije. 66 (2015), 2; 1-14.
15. Čorić, Većeslav; Ćatipović, Ivan; Slapničar, Vedran. Floating crane response in sea waves. **Brodogradnja**: časopis brodogradnje i brodograđevne industrije. 65 (2014), 2; 111-120.
16. Ćatipović, Ivan; Čorić, Većeslav; Radanović, Jadranka. An improved stiffness model for polyester mooring lines. **Brodogradnja**: časopis brodogradnje i brodograđevne industrije. 62 (2011), 3; 235-248.
17. Ćatipović, Ivan; Vladimir, Nikola; Reljić, Marin. Numerical procedure for two beams elastic impact analysis. **Strojarstvo**. 51 (2009), 1; 27-37.

18. Senjanović, Ivo; Ćatipović, Ivan; Tomašević, Stipe. Coupled horizontal and torsional vibrations of a flexible barge. **Engineering Structures**. 30 (2008), 1; 93-109.
19. Senjanović, Ivo; Ćatipović, Ivan; Tomašević, Stipe. Coupled flexural and torsional vibrations of ship-like girders. **Thin-walled Structures**. 45 (2007), 12; 1002-1021.
20. Degiuli, Nastia; Ćatipović, Ivan; Martić, Ivana; Werner, Andreja; Čorić, Većeslav. Increase of ship fuel consumption due to the added resistance in waves. **Journal of Sustainable Development of Energy, Water and Environment Systems**. 5 (2017), 1; 1-14.
21. Senjanović, Ivo; Ćatipović, Ivan; Tomašević, Stipe. Coupled flexural and torsional vibrations of thin-walled girders. **Transaction of FAMENA**. (2007), XXXI; 1-24

INTERNATIONAL CONFERENCE CONTRIBUTIONS:

1. Ćatipović, Ivan; Ćorak, Maro; Parunov, Joško; Alujević, Neven. Seakeeping experiments on damaged ship. Proceedings of the **International Conference on Ships and Offshore Structures** (ICSOS 2018). Gothenburg, 2018.
2. Rudan, Smiljko; Ćatipović, Ivan; Berg, Richard; Svenja, Völkner; Pero Prebeg. Numerical study on the consequences of different ship collision modelling techniques. Proceedings of the **International Conference on Ships and Offshore Structures** (ICSOS 2018). Gothenburg, 2018.
3. Tanocki Musa, Ela; Ćatipović, Ivan. Odziv plutajućeg valobrana s zglobnim spojevima. Proceedings of the 23rd **Symposium on Theory and Practice of Shipbuilding, In Memoriam prof. Leopold Sorta** (SORTA 2018). Blagojević, Branko; Ljubenkov, Boris; Vlak, Frane; Klarin, Branko; Ban, Dario; Bašić, Josip; Hadjina, Marko ; Degiuli, Nastia (ur.). Split, 2018.
4. Alujević, Neven; Ćatipović, Ivan; Malenica, Šime; Senjanović, Ivo; Vladimir, Nikola. Ship roll control and energy harvesting using a U- tube anti-roll tank. Proceedings of the **International Conference on Noise and Vibration Engineering** (ISMA2018) and the International Conference on Uncertainty in Structural Dynamics (USD2018). Desmet, W ; Pluymers, B ; Moens, D ; Rottiers, W (ur.). Leuven, 2018.
5. Ćatipović, Ivan. Comparison of dynamic and quasi-static towline model for evaluation of wave-induced towed ship motions. Proceedings of the 4th **International Conference on Maritime Technology and Engineering** (MARTECH 2018). Guedes Soares, C.; Santos, T.A. (ur.). CRC Press/Balkema. Lisbon, 2018.
6. Senjanović, Ivo; Ćatipović, Ivan; Alujević, Neven; Vladimir, Nikola; Čakmak, Damjan. Sophisticated finite strip for vibration analysis of a rotating cylindrical shell. Proceedings of the **International Conference on Engineering Vibration**. (ICoEV 2017) - MATEC Web of Conferences. Manoach, E. ; Stoykov, S. ; Wiercigroch, M. (ur.). Sofija, Bugarska, 2018.
7. Martić, Ivana; Degiuli, Nastia; Ćatipović, Ivan. Towards understanding the ship added resistance in waves. Proceedings of the 22nd **Symposium on Theory and Practice of Shipbuilding, In Memoriam prof. Leopold Sorta** (SORTA 2016). Degiuli, Nastia ; Kalman, Žiha (ur.). Trogir, 2016.
8. Prosinečki, Tomislav; Martić, Ivana; Ćatipović, Ivan. Utjecaj kuta nagiba na pomorstvene karakteristike jedrilica. Zbornik radova 22. simpozija **Teorija i praksa brodogradnje, in memoriam prof. Leopold Sorta** (SORTA 2016). Degiuli, Nastia ; Kalman, Žiha (ur.). Trogir, 2016.
9. Ćatipović, Ivan. Overview of numerical and experimental setups for damaged ship motions and loads at sea waves. Zbornik radova 22. simpozija **Teorija i praksa brodogradnje, in memoriam prof. Leopold Sorta** (SORTA 2016). Degiuli, Nastia; Kalman, Žiha (ur.). Trogir, 2016.
10. Martić, Ivana; Degiuli, Nastia; Ćatipović, Ivan. Seakeeping characteristics of intact and damaged ship in the Adriatic Sea. Proceedings of the 16th International Congress of the **International Maritime Association of the Mediterranean** (IMAM 2015) - Towards Green Marine Technology and Transport. Guedes Soares, C., Dejhalla, R., Pavletć, D. (ur.). Leiden : CRC Press/Balkema, 2015.

11. Ćatipović, Ivan; Degiuli, Nastia; Werner, Andreja; Čorić, Većeslav; Radanović, Jadranka. Numerical model of towing line in sea transport. 33rd **International Conference on Ocean, Offshore and Arctic Engineering** (OMAE 2014). Ronald W. Yeung (ur.). San Francisco : ASME, 2014.
12. Ćatipović, Ivan; Degiuli, Nastia; Werner, Andreja; Čorić, Većeslav; Radanović, Jadranka. Approximation of Towline Influence on Towed Ship Motions. Proceedings of the 2nd **International Conference on Maritime Technology and Engineering** (MARTECH 2014). Guedes Soares, C. (ur.). CRC Press/Balkema. Lisbon, 2014.
13. Degiuli, Nastia; Ćatipović, Ivan; Martić, Ivana; Werner, Andreja; Čorić, Većeslav. Influence of added resistance in regular waves on ship fuel consumption. Proceedings of the 9th **Conference on Sustainable Development of Energy, Water and Environment Systems** (SDEWES 2014). Duić, Neven (ur.). Zagreb, 2014.
14. Ćatipović, Ivan; Degiuli, Nastia; Čorić, Većeslav; Werner, Andreja; Slapničar, Vedran; Radanović, Jadranka. Dinamika broda u teglju. Zbornik radova 21. simpozija **Teorija i praksa brodogradnje, in memoriam prof. Leopold Sorta** (SORTA 2014) Dejhalla, Roko; Degiuli, Nastia; Matulja, Dunja; Mrakovčić, Tomislav; Zamarin, Albert (ur.). Baška, 2014.
15. Tomić, Marko; Senjanović, Ivo; Ćatipović, Ivan. Floater-tether semi-coupled dynamic response analysis of tension leg platforms. Zbornik radova 21. simpozija **Teorija i praksa brodogradnje, in memoriam prof. Leopold Sorta** (SORTA 2014). Dejhalla, R. ; Degiuli, N.; Matulja, D.; Mrakovčić, T.; Zamarin, A. (ur.). Baška, 2014.
16. Ćosić, Željko; Vladimir, Nikola; Ćatipović, Ivan. Numeričko modeliranje mehaničkih naprezanja aparata visokonaponskih rasklopnih postrojenja uslijed djelovanja potresa. **11.savjetovanje HRO CIGRE**: zbornik radova. Filipović-Grčić, Božidar (ur.). Zagreb, 2013.
17. Ćatipović, Ivan; Čorić, Većeslav; Slapničar, Vedran; Radanović, Jadranka; Veić, Duje. Dizanje teških tereta na valovitom moru – dinamički kriterij. Zbornik radova V **Savjetovanja o morskoj tehnologiji in memoriam akademiku Zlatku Winkleru**. Rožanić, Igor (ur.). Rijeka, 2013.
18. Čorić, Većeslav; Ćatipović, Ivan; Radanović, Jadranka. Polaganje podmorskih cjevovoda u obalnom području. Zbornik radova 20. simpozija **Teorija i praksa brodogradnje, in memoriam prof. Leopold Sorta** (SORTA 2012). Žiha, Kalman (ur.). Zagreb, 2012.
19. Ćatipović, Ivan; Čorić, Većeslav; Vukčević, Vuko. Dynamics of FPSO with Polyester Mooring Lines; Proceedings of the 22nd **International Offshore and Polar Engineering Conference** (ISOPE 2012). Chung, J.S.; Langen, I. ; Hong, S.Y., Prinsenberg, S.J. (ur.) Rhodes, Greece, 2012.
20. Ćatipović, Ivan; Čorić, Većeslav; Veić, Duje. Calculation of Floating Crane Natural Frequencies Based on Linearized Multibody Dynamics Equations. Proceedings of the 30th **International Conference on Ocean, Offshore and Arctic Engineering** (OMAE 2011). Riggs, H.R. ; Buchner, B. (ur.). Rotterdam: ASME, 2011.
21. Vladimir, Nikola; Ćatipović, Ivan; Čorić, Većeslav; Senjanović, Ivo. Zaštitna konstrukcija za komunikacijski most između dvaju pomorskih objekata. Zbornik radova III **Savjetovanja o morskoj tehnologiji in memoriam akademiku Zlatku Winkleru**. Rožanić, Igor (ur.). Rijeka, 2010.
22. Čorić, Većeslav; Balenović, Vlado; Ćatipović, Ivan; Reljić, Marin. Subsea Pipeline Installation by Above-pull Method, 4th **International Conference on Marine Waste Water Discharges and Coastal Environment**, Antalya, Turkey, 2006.
23. Čorić, Većeslav; Mravak, Zoran; Ćatipović, Ivan. SEDU Labin – Upgrading, 3rd **International Conference Welding in Maritime Engineering**, Hvar, Croatia, 2004.

DISSERTATIONS, GRADUATION THESES AND TECHNICAL MEMORANDA

1. Ćatipović, Ivan: **Integrated Model for the Dynamic Response of an FPSO**, **PhD thesis**. University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, 2009.

2. Ćatipović, Ivan: **Reconstruction of Substructure Derrick on Semisubmersible Oil Rig Zagreb 1**, **Diploma thesis**. University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, 2002.