

## PERSONAL INFORMATION

Ivna Kavre Piltaver



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**Gender** women | **Date of birth** 28/09/1986 | **Citizenship** Croatian

## WORKING EXPERIENCE

**November 2017 -**

### **Assistant professor**

Department of Physics and Center for micro- and nanosciences and technology, University of Rijeka, Croatia

**January 2015 – November 2017**

### **Postdoctoral researcher**

Center for micro- and nanosciences and technology, Department of Physics, University of Rijeka, Croatia

**November 2013 – October 2014**

### **Teaching assistant**

Department of Physics, University of Rijeka, Croatia

**October 2010 – June 2013**

### **PhD student, Young researcher**

Faculty of Mathematics and Physics, University of Ljubljana, Slovenia. Part of the COMPLOIDS project as a PhD student.

**September 2009 – June 2010**

### **Teacher**

Italian elementary school „Gelsi“, Rijeka, Croatia  
Teaching physics

## EDUCATION

**October 2010 – September 2014**

### **Doctor of science, field: Physics**

Faculty of Mathematics and Physics, University of Ljubljana, Slovenia  
Title of the PhD thesis: „Beyond hard-walled spherical colloids“, COMPLOIDS, Initial Training Network Marie Curie

**September 2008 – September 2010**

### **Master of education in Physics and Mathematics**

Department of Physics, University of Rijeka, Croatia  
Title of the thesis: „Synchrotron radiation and its application in the investigation of boron nitride“. The measurements were done at NSSRC (National Synchrotron Radiation Research Center) in Hsinchu City, Taiwan

**September 2005 – September 2008**

### **Bachelor of Physics**

Department of Physics, University of Rijeka, Croatia  
Title of the thesis: „Transformator“

September 2001 – June 2005.

High school

High school in italian language, LICEO, Rijeka, Croatia

## PERSONAL SKILLS

### Knowledge of languages

**Mother tongue** Croatian

Foreign languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
Italian	C2	C2	C2	C2	C2
English	C1	C1	B2/C1	B2/C1	C1
Slovenian	C2	C2	C1	C1	C1
French	A1	A1	A1	A1	A1

### **Social skills**

- Readiness for adoption of new ideas and knowledge, teamwork
- Eksperience in lectures, work with students
- Experience in working with children (tutor)
- Attendance of the seminar »Oral scientific presentations», University of Vienna, Vienna, Austria (2011)

### **Computer skills**

- Writing programs: Microsoft Word, LaTeX (basic)
- Presentation programs: Microsoft Power Point
- Data processing programs: Origin, Excel, Geogebra, Mathematica (basic), Python (basic), Unifit

### **Technical skills**

- Scanning Electron Microscopy (SEM), dynamic Secondary Ion Mass Spectrometry (SIMS) and static-SIMS of solid state materials and devices, X-ray Photoelectron Spectroscopy (XPS) and Near Edge X-ray Absorption Fine Structure Spectroscopy (NEXAFS), Atomic Layer Deposition technique (ALD), Optical tweezers, Photolithography and soft lithography methods, Atomic Force Microscopy (AFM)

### **Driving licence**

- B category from 2004

### **Other skills**

- Painting and jewelry
- Hiking and running
- Lived in Slovenia (4 years), travelled: Taiwan, Malaysia, Hong-Kong, Italy, Austria, England, Greece, Scotland, Danemark, France, Spain, Czech Republic, Turkey, Hungary, Tunis, Netherland, Belgium, Portugal, Germany

## PROFESSIONAL DEVELOPMENT

Nov 18 – Nov 24 2010

- Seminar: Colloidal dispersion rheology, Heraklion, Greece

May 30 – Jun 3 2011

- Seminar: Glass forming systems, Edinburgh, Scotland

May 30 – Jun 3 2011

- Seminar: Confocal imaging and flow, Edinburgh, Scotland

- Sep 11 – Sep 12 2011 ▪ Seminar: Complex fluid flow in porous media, Vienna, Austria
- Sep 13 – Sep 14 2011 ▪ Seminar: Oral scientific presentations, Vienna, Austria
- Dec 5 – Dec 9 2011 ▪ Seminar: Observation techniques for complex fluids, Bordeaux, France
- Dec 5 – Dec 9 2011 ▪ Seminar: Microfluidics, Bordeaux, France
- May 29 2012 ▪ Seminar: English language, scientific writing, Edinburgh, Scotland
- Jul 3 – Jul 13 2012 ▪ Summer school: COMPLOIDS Summer School, Physics of complex colloids, Varenna, Italy
- May 14 2013 ▪ Seminar: Data visualization, Ljubljana, Slovenia
- Sep 7 – Oct 23 2015 ▪ Training: Scanning Electron Microscope (SEM), Ljubljana, Slovenia (SIZIF project)
- Aug 26 2016 ▪ Training at EMC2016 congress in Lyon, France, HYPERSpy

## SCIENTIFIC ACTIVITY

**Awards** ▪ Rectors' award (2010)

**Membership in professional organizations**

- Croatian microscopic society (member from 2015)
- European microscopic society (member from 2015)
- Croatian vacuum society (member from 2017)

**Publications**  
**Original scientific papers published in CC journals**

- 1) M. Petracic, R. Peter, **I. Kavre**, L.H. Li, Y. Chen, L.-J. Fan, Y.-W. Yang, Decoration of nitrogen vacancies by oxygen atoms in boron nitride nanotubes, *Phys. Chem. Chem. Phys.* 12 (2010) 15349-15353.
- 2) M. Petracic, M. Varasanec, R. Peter, **I. Kavre**, M. Metikos-Hukovic, Y.-W. Yang, Electronic structure of nitinol surfaces oxidized by low-energy ion bombardment, *J. Appl. Phys.* 115 (2014) 243703.
- 3) **I. Kavre**, G. Kostevc, S. Kralj, A. Vilfan, D. Babič, Fabrication of Magneto-Responsive Microgears Based on Magnetic Nanoparticles Embedded PDMS, *RSC Adv.* 4 (2014) 38316-38322.
- 4) **I. Kavre**, A. Vilfan, D. Babič, Hydrodynamic synchronization of autonomously oscillating optically trapped particles, *Phys. Rev. E* 91 (2015) 031002.
- 5) I. Saric, R. Peter, **I. Kavre**, I. Jelovica Badovinac, M. Petracic, Oxidation of nickel surfaces by low energy ion bombardment, *Nucl. Instrum. Meth. B* 371 (2016) 286-289.
- 6) I. Saric, R. Peter, **I. Kavre Piltaver**, I. Jelovica Badovinac, K. Salamon, M. Petracic, Residual chlorine in TiO<sub>2</sub> films grown at low temperatures by plasma enhanced atomic layer deposition, *Thin Solid Films* 628 (2017) 142-147.
- 7) **I. Kavre Piltaver**, R. Peter, I. Šarić, K. Salamon, I. Jelovica Badovinac, K. Koshmak, S. Nannarone, I. Delač Marion, M. Petracic, Controlling the grain size of polycrystalline TiO<sub>2</sub> films grown by atomic layer deposition, *Appl. Surf. Sci.* 419 (2017) 564-572.
- 8) R. Peter, I. Saric, **I. Kavre Piltaver**, I. Jelovica Badovinac, M. Petracic, Oxide formation on chromium metal surfaces by low-energy oxygen implantation at room temperature, *Thin Solid Films* 636 (2017) 225-231.
- 9) **I. Kavre Piltaver**, I. Jelovica Badovinac, R. Peter, I. Saric, M. Petracic, Modification of molybdenum surface by low-energy oxygen implantation at room temperature, *Appl. Surf. Sci.* 425 (2017) 416-422.
- 10) A. Omerzu, I. Saric, **I. Kavre Piltaver**, M. Petracic, T. Kapun, J. Zule, S. Stifter, K. Salamon, Prevention of spontaneous combustion of cellulose with a thin protective Al<sub>2</sub>O<sub>3</sub> coating formed by atomic layer deposition,

*Surf. Coat. Technol.* 333 (2018) 81-86.

## Scientific papers in other journals

- 1) Jelovica Badovinac, **I. Kavre Piltaver**, I. Šarić, R. Peter, M. Petravić, Oxidation of molybdenum by low energy ion bombardment, *Materiali in tehnologije/Materials and technology* 51 (2017) 617-621.

## Projects

- Marie Curie Action, Initial Training Network: Physics of Complex Colloids, Equilibrium and Driven (COMPLOIDS) leader: prof. dr. sc. Christos N. Likos (October 2010 – October 2013) (PhD position)
- Acquisition of Research and Scientific Excellence in the Functionalization of Biomedical Materials (SIZIF) (the project was co-financed by the European Union from the European Social Fund), leader: prof. dr. sc. Mladen Petravić (April 2014 – September 2016) (collaborator)
- Modification of surface and defect control for new applications of advanced functional materials, (University Grant, University of Rijeka), leader: prof. dr. sc. Mladen Petravić (collaborator)
- Preparation of porous thin-layer materials for water purification by atomic deposition techniques (ALD) (Croatian Foundation for Science), leader: doc. dr. sc. Gabriela Ambrožić (April 2017 – ) (collaborator)
- Ex-situ preparation of thin-layer hybrid materials with Atomic Layer Deposition techniques, (University Grant, University of Rijeka), leader: doc. dr. sc. Gabriela Ambrožić (April 2017 – ) (collaborator)

## Conferences

### Partecipation on conferences:

- 7. konferenca fizikov v osnovnih raziskavah, Portorož, Slovenia (Nov 5 2010)
- Mid-Term Rewiew 2011, Vienna, Austria (Jun 16 – Jun 17 2011)
- Liquid Matter Conference 2011, Vienna, Austrija (Sep 5 – Sep 10 2011)
- 14. slovensko srečanje o uporabi fizike, Portorož, Slovenia (Oct 28 2011)
- Physics of complex colloids, Comploids conference – (poster) Cankarjev dom, Ljubljana, Slovenia (May 14 – May 18 2013)
- International Soft Matter Conference - (poster) Universita La Sapienza, Rome, Italy (Sep 15 – Sep 22 2013)
- The 16th European Microscopy Congress, Lyon, France (Aug 28 – Sep 2 2016)
- 24 International Conference on Materials and Technology, Portorož, Slovenia, (Sep 28 – Sep 30 2016)
- 24<sup>th</sup> International Scientific Meeting on Vacuum Science and Technique Zadar, Croatia (May 18 – May 19 2017) – invited speaker, Controlling the grain size of polycrystalline TiO<sub>2</sub> films grown by atomic layer deposition

### Contribution on conferences - personal presentation and presentation of others

#### Invited speaker:

- **I.Kavre Piltaver**, R. Peter, I. Šarić, K. Salamon, I. Jelovica Badovinac, K. Koshmak, S. Nannarone, I. Delač Marion, M. Petravić, Controlling the grain size of polycrystalline TiO<sub>2</sub> films grown by atomic layer deposition, 24<sup>th</sup> International Scientific Meeting on Vacuum Science and Technique, Zadar, Croatia (May 18 – May 19 2017)

#### Oral presentation - others

- Vilfan, **I. Kavre**, D. Babič, Hydrodynamic synchronization of

autonomously oscillating particles in an optical trap, Flowing Matter 2014, Lisbon, Portugal (Dec 15 – Dec 17 2014) (the presentation was held by A. Vilfan)

- Stambolić, M. Jenko, A. Kocijan, Č. Donik, M. Petravić, **I. Kavre Piltaver**, I. Šarić, V. Kononenko, Analysis of coatings on the surface of nitinol formed by ALD process, 24th International Conference on Materials and Technology (24 ICM&T), Portorož, Slovenia, (Sep 28 – Sep 30 2016) (the presentation was held by A. Stambolić)
- S. Bosak, M. Mejdandzic, **I. Kavre Piltaver**, M. Petravac, M. Gligora Udovic, Z. Ljubescic, Diversity of pennate diatoms in the plankton of the southern Adriatic sea, 23rd Nordic Diatomists' Meeting 2017, Tallin, Estonia, (Apr 24 – Apr 28 2017) (the presentation was held by S. Bosak)

#### Posters – personal presentation

- **I.Kavre**, G. Kostrevc, S. Kralj, D. Babič, Hydrodynamic synchronization of non-spherical colloids, Physics of Complex Colloids, Ljubljana, Slovenia, (May 13 – May 18 2013)
- **I.Kavre**, A. Vilfan, D. Babič, Colloids embedded with magnetic nanoparticles, International Soft Matter Conference, Rome, Italy, (Sep 15 – Sep 19 2013)
- **I.Kavre Piltaver**, I. Jelovica Badovinac, I. Šarić, R. Peter, M. Petravić, Controlling the grain size of polycrystalline TiO<sub>2</sub> films grown by atomic layer deposition, 16<sup>th</sup> European Microscopy Congress, Lyon, France, (Aug 28. – Sep 2 2016)

#### Posters – presented by others

- I.Šarić, R. Peter, **I. Kavre**, I. Jelovica Badovinac, M. Petravić, Oxidation of nickel surface by low energy ion bombardment, 22<sup>nd</sup> International Conference on Ion Beam Analysis, Opatija, Croatia, (Jun 14 – Jun 19 2015) (poster presented by I. Šarić)
- I.Jelovica Badovinac, I. Šarić, **I. Kavre Piltaver**, G. Ambrožić, R. Peter, M. Petravić, Narastanje tankih filmova titanovog nitrida i titanovog oksida tehnikom depozicije atomskih slojeva, Hrvatsko fizikalno društvo, Umag, Croatia, (Oct 5 – Oct 7 2015) (poster presented by I. Jelovica Badovinac)
- I.Saric, R. Peter, I. Jelovica Badovinac, **I. Kavre Piltaver**, G. Ambrožic, A. Omerzu, M. Spreitzer, M. Petravac, On crystalline structure of TiO<sub>2</sub> films grown by plasma-enhanced atomic layer deposition, 16<sup>th</sup> Atomic Layer Deposition Conference, Dublin, Ireland, (Jul 24 – Jul 27 2016) (poster presented by I. Saric)
- I.Saric, R. Peter, **I. Kavre Piltaver**, I. Jelovica Badovinac, M. Petravic, Investigation of residual chlorine in TiO<sub>2</sub> films grown by Atomic Layer Deposition, JVC-16, EVC-14, CroSloVM-23, Portorož, Slovenia, (Jun 6 – Jun 10 2016) (poster presented by I. Saric)
- R. Peter, I. Saric, **I. Kavre Piltaver**, I. Jelovica Badovinac, M. Petravic, In-depth profiling of TiO<sub>2</sub> films grown by Atomic Layer Deposition for the nitinol alloy coating, SIMS Europe 2016, Münster, Germany (Sep 18 – Sep 20 2016) (poster presented by R. Peter)
- I.Jelovica Badovinac, **I. Kavre Piltaver**, I. Šarić, R. Peter, M. Petravić, Oxidation of molybdenum by low energy ion bombardment, 24<sup>th</sup> International Conference on Materials and Technology (24 ICM&T), Portorož, Slovenia, (Sep 28 – Sep 30 2016) (poster presented by I. Jelovica Badovinac)

- R. Peter, I. Šarić, **I. Kavre Piltaver**, I. Jelovica Badovinac, M. Petravić, Oxide formation on chromium metal surfaces by low-energy oxygen implantation at room temperature, 24<sup>th</sup> International Scientific Meeting on Vacuum Science and Technique, Zadar, Croatia (May 18 – May 19 2017) (poster presented by R. Peter)

#### Visits to foreign scientific institutions

- **National Synchrotron Radiation Research Center (Hsinchu, Taiwan)** – measurements on beamline BL24A1 (8. – 16. 1. 2010, 25. 11. – 1. 12. 2013)
- **Jozef Stefan Institute (Ljubljana, Slovenia)** - Training: Scanning Electron Microscope (SEM), Ljubljana, Slovenia (SIZIF project) (7. 9. 2015 – 23. 10. 2015)
- **Elettra Sincrotrone Trieste (Basovizza, Italija)** – measurements on beamline BEAR (Sep 20 – Sep 22 2016, Oct 3 – Oct 5 2016, Jan 20 – Jan 21 2017)

#### TEACHING ACTIVITY

Date	Course	Institution
Jan 20 – Feb 7 2014	Biophysics (laboratory), Undergraduate study in dental medicine, 1st year	Faculty of Medicine, University of Rijeka
Feb 17 – Mar 19 2014	Physics and biophysics (exercises and laboratory), Undergraduate study in Sanitary engineering, 1st year	Faculty of Medicine, University of Rijeka
Mar 3 – Jun 20 2014	Basic of physics 2, Undergraduate study in informatics, 1st year	Department of Informatics, University of Rijeka
Jan 19 – Feb 12 2015	Biophysics (laboratory), Undergraduate study in dental medicine, 1st year	Faculty of Medicine, University of Rijeka
Feb 19 – Mar 19 2015	Physics and biophysics (exercises), Undergraduate study in dental medicine, 1st year	Faculty of Medicine, University of Rijeka
Mar 2 – Jun 19 2015	Physics laboratory IV, Undergraduate study in physics, 3rd year	Department of Physics, University of Rijeka
Oct 1 – Jan 29 2016	Physics 3 (wave and optics), Undergraduate study in physics, 2nd year (exercises)	Department of Physics, University of Rijeka
Oct 1 – Jan 29 2016	Electronics laboratory, Graduate study in physics, 2nd year	Department of Physics, University of Rijeka
Feb 29 – Jun 17 2016	Physics laboratory IV, Undergraduate study in physics, 3rd year	Department of Physics, University of Rijeka
Feb 29 – Jun 17 2016	Physics laboratory IV, Undergraduate study in physics and math, physics and philosophy, 3rd year	Department of Physics, University of Rijeka
Oct 3 – Jan 31 2017	Physics 3 (wave and optics), Undergraduate study in physics, 2nd year (exercises)	Department of Physics, University of Rijeka
Oct 3 – Jan 31 2017	Electronics laboratory, Graduate study in physics, 2nd year	Department of Physics, University of Rijeka
Mar 1 – Jun 14 2017	Physics laboratory IV, Undergraduate study in physics, 3rd year	Department of Physics, University of Rijeka