

## CURRICULUM VITAE

**Dr KOVAČEVIĆ S. Milan**

**Assistant Professor**



BSc-Physics (Kragujevac) Yugoslavia  
MSc-Physics (Belgrade) Yugoslavia  
PhD-Physics (Kragujevac) Serbia

**Research Areas:**

Applied Physics, Plasma Physics and Physics Education

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**Date of birth:** May 21, 1967,

**Plase of birth:** Bajina Bašta, SERBIA (Former Yugoslavia, now Serbia)

**Citizenship:** Serbian

**Persons fully dependent upon me for financial support:**

Kovačević Sonja, wife, Professor of physics in the high school.

Kovačević Ivona, daughter, student, primary school.

## EDUCATION/Degrees:

<p><b>PhD Thesis:</b> “<i>Contribution to modelling of light propagation in multimode step-index plastic optical fibres</i>”, University of Kragujevac, Faculty of Science, Department of Physics, Serbia (2007).</p> <p>Area: Applied physics</p>
<p><b>MSc Thesis:</b> “<i>Contributions to investigation of plasma in plasma sources of surfatron type</i>”, University of Belgrade, Faculty of Physics, Belgrade, Yugoslavia (2000).</p> <p>Area: Plasma physics</p>
<p><b>BSc:</b> Diploma in Physics, University of Kragujevac, Faculty of Science, Department of Physics, Kragujevac, Yugoslavia (1993).</p> <p>Area: Radiation physics</p>

**Languages Spoken:** Serbian (mother language), English, and Russian.

## EMPLOYMENT/ Working Experiences:

1993-1995: Physics teacher, High School, Valjevo, Yugoslavia.
1995-2006: Assistant, Department of Physics, Faculty of Science, University of Kragujevac, Yugoslavia.
1996-2004: Teaching Assistant (biophysics), Medical Faculty of University of Serb Sarajevo.
2002: Research Assistant (6 months), City University of Hong Kong, MEEM Department, (Project “ <i>Curvature gauge made of glass optical fibers</i> ”).
2005: Research Assistant (3 months), City University of Hong Kong, MEEM Department, (Project “ <i>Mode Coupling in Plastic Optical Fibers</i> ”).
2006: Research Assistant (3 months), City University of Hong Kong, MEEM Department, (Project “ <i>Mode Coupling in Plastic Optical Fibers</i> ”).
2007: 12-23 February, Winter College on Fiber Optics, Fiber Lasers and Sensors, ICTP Trieste, Italy
2008: Senior Research Assistant (3 months), City University of Hong Kong, MEEM Department, (Project “ <i>Mode Coupling in Plastic Optical Fibers</i> ”).
2009: Research Fellow (3 months), City University of Hong Kong, MEEM Department, (Project “ <i>Power Transfer in Curved Polymer Optical Fibers</i> ”).
2008-present: Assistant Professor, Department of Physics, Faculty of Science, University of Kragujevac, Serbia.

## TEACHING/ Current Courses:

### Undergraduate (BSc and MSc)

- Plasma Physics
- Optical Waveguides
- Electrodynamics (classical)
- Physics in the school
- Physics laboratory (electromagnetism and optics)
- Biophysics

### Postgraduate (PhD)

- Theory of Optical waveguides

## RESEARCH

- Ray analysis of step- and graded-index optical waveguides;
- Electromagnetic analysis of step- and graded-index optical waveguides;
- Transmission properties (optical power, loss, dispersion, bandwidth) of step- and graded-index plastic optical fibers (POF);
- Dispersion relation of surface plasma waves;
- Coherent nonlinear structures in two-dimensional compressional MHD;
- Physics education.

## OTHER ACTIVITIES

### Reviewer:

- Optical and Quantum Electronics
- Chinese Physics Letters
- Journal of Optics & Laser Technology
- IEEE Sensors Journal
- Computer Applications in Engineering Education

## SELECTED PUBLICATIONS/International Journal on ISI list

1. Kovacevic M., Nikezic D., and Djordjevic A., "Monte Carlo simulation of curvature gauges by ray tracing," *Meas. Science Tech.* **15** (2004) 1756-1761
2. Kovacevic M., Nikezic D, and Djordjevich A, "Modelling of the Loss and Mode Coupling that are Due to Irregular Core-Cladding Interface in SI POF," *Applied Optics* **44**, (2005) 3898-3903
3. Babovic V., Kovacevic M., and Kanjevac K., "An Efficient Iterative Procedure for Solution of Plasma Loaded Helical Waveguide Problems," *Chinese Physics Letters*, **22**, (2005) 3123-3126
4. Babovic V., Kovacevic M., and Djordjevich A., "Numerical investigations of guided plasma waves beyond the quasistatic limits," *Wave Motion*, **43/6** (2006) 499-507
5. Kovacevic M., and Nikezic D., "The influence of the bend on the power distribution in step-index plastic optical fibers and calculation of the bending loss," *Applied Optics* **45** (2006) 6675-6681
6. Kovacevic M., Djordjevich A., and Nikezic D., "Effect of end-face tilt-angle on numerical aperture for straight and bent plastic optical fibers," *Fiber & Integrated Optics* **26.2** (2007)

7. Cabric, B., Kovacevic, M., Pavlovic, T., "Crystallization in a chamber furnace," *J. Applied Crystallography*, **30**, 512, (1996)
8. Kovacevic M. and Djordjevich A., "A mechanical analogy for the photoelectric effect," *Physics Education* **41** (6) (2006) 551-555
9. Kovacevic M., Nikezic D., Reply to Comment on "Influence of bending on power distribution in step-index fibers and calculation of bending loss," *Applied Optics* **46** 4869-4870 (2007)
10. Kovacevic M., Djordjevich A. and Nikezic D., "Analytical Optimization of Optical Fibre Curvature Gauges," *IEEE Sensors Journal* **8**, 227-232 (2008)
11. Kovacevic M., Djordjevich A., "Thermal Diffusion Process estimation for fabrication of graded plastic optical fibers," *Chinese Physics Letters* **25** (11) 4030-4033 (2008)
12. Kovacevic M., Djordjevich A., Nikezic D., "Light propagation in thermally expanded core fibers with graded-index," *Optica Applicata* **39** (2) 267-276 (2009)
13. Kovacevic M., Djordjevich A., "Variation of modal dispersion and bandwidth with temperature in PMMA based step-index polymer optical fibers," *Journal of Optoelectronics and advanced materials*, **11** (11) 1821-1825 (2009)
14. Kovacevic M., Djordjevich A., "Temperature dependence analysis of mode dispersion in step-index polymer optical fibers," *Acta Physica Polonica A* **116** (4) 649-651(2009)
15. Savovic S., Djordjevic A., Drljaca B., Kovacevic M., "Comparison of methods for calculating coupling length in step-index optical fibers," *Acta Physica Polonica A* **116** (4) 652-654 (2009)
16. Kovacevic M., Djordjevich A., "Investigation of influence of tilt angle on mode dispersion in step-index plastic optical fibers", *Opto-Electronics Review* (Accepted, may 2010)
17. Simic S., Kovacevic M., "Computer sound card as a tool to study of fast changing electromagnetic phenomena," *Computer Applications in Engineering Education*, DOI: 10.1002/cae.20458 (2010)
18. Kovacevic M., Simic S., "Plastic Optical Fiber as a Tool for Experimenting with Simple Pendulum", *Revista Brasileira de Ensino de Fisica*, **32** (3), (2011)
19. Kovacevic M., Djordjevich A., "Contribution to modeling of material dispersion around zero material dispersion wavelengths in optical fibers," *Optica Applicata* (Submitted, 2010)

## **SELECTED PUBLICATIONS/ International conference papers:**

1. Djordjevich A., Kovacevic M. and Nikezic D., "Curvature Gauge simulation by ray tracing," *5th General Conference of the Balkan Physical Union*, (2003) 947-952
2. Kanjevac K., Babovic V and Kovacevic M., "Basic equations of plasma loaded helical waveguide treated by fixed point method," *5th General Conference of the Balkan Physical Union*, (2003) 1121-1124
3. Kovacevic M and Nikezic D., "A desktop apparatus for studying projectile motion and measuring the gravity acceleration, g.,," *5th General Conference of the Balkan Physical Union*, (2003)
4. K., Kanjevac, V., Babovic and M., Kovacevic "Fixed Point Method in Plasma Loaded Helical Waveguide Problems," *22nd Summer School and International Symposium on the Physics of Ionized Gases, Tara, Serbian and Montenegro*, (2004) 437-440
5. D. Jovanovic and M. Kovacevic "Coherent Nonlinear Structures in two-dimensional Compressional MHD," *22nd Summer School and International Symposium on the Physics of Ionized Gases, Tara, Serbian and Montenegro*, (2004) 540-544
6. V. Babovic, M. Kovacevic, and K. Kanjevac, "EM Waves in Plasma Waveguides – Numerical treatment based on the fixed point method," *XLVIII Conference for electronics, telecommunications, computers, automation and nuclear engineering, Serbia and Montenegro, Belgrade* (2004) 193-195

7. Kovacevic M., Djordjevich A., Nikezic D., "An analytical approach and optimization of curvature gauge," IOP, J. Phy. Conference Series **48** (2006) 850-858 *4<sup>th</sup> International Symposium on Instrumentation Science and Technology, Harbin, China, (2006)*
8. Kovacevic M., Nikezic D., Djordjevich A., "Modeling of light propagation in step-index polymer optical fibers with random imperfections by ray tracing," Winter College on Fiber Optics, Fiber Lasers and Sensors, 12-23 February 2007, ICTP Trieste, Italy.
9. Kovacevic M., Djordjevich A., "Temperature dependence analysis of mode dispersion in step-index polymer optical fibers," *II International School and Conference on Photonics*, 24-28 August 2009, Belgrade, Serbia (Book of Abstracts: p.128).
10. Savovic S., Djordjevich A., Drljaca B., Kovacevic M., "Comparison of methods for calculating coupling length in step-index optical fibers," *II International School and Conference on Photonics*, 24-28 August 2009, Belgrade, Serbia (Book of Abstracts: p.129).
11. Kovacevic M., Djordjevich A., „Behaviour of material dispersion neighborhood of zero material dispersion wavelength in optical fibers," Photon 2010, 23-26 August 2010, Southampton, UK (Accepted).

### **SELECTED PUBLICATIONS/ National journals (in English):**

1. Babovic, V., Milojevic, S., Kovacevic, M. "Axially symmetric electron plasma surface waves on equivalent cylindrical guiding structures," Collection of Scientific papers of Faculty of Science, **17**, (1995) Kragujevac 107-122
2. Babovic, V., Kovacevic, M. "An estimation of the plasma column length in a discharge of the surfatron type," Collection of Scientific papers of Faculty of Science, **19** (1997) Kragujevac 85 - 93
3. Babovic, V., Kovacevic, M. "Evaluating of the dispersion relation of the surface electron plasma waves by fixed point method," J. Res. Physics **28**, (2002) 5-12
4. Kanjevac K., Babovic V., Kovacevic M. "Improved Numerical solutions to plasma loaded helical waveguide," J. Sci., **25**, Kragujevac, (2003) 21-40
5. Danilovic N., Kovacevic M., Babovic V., "Could variable mass oscillator exhibit the lateral instability ? " *J. Sci.* **30** Kragujevac, Serbia (2008) 31-44.

### **SELECTED PUBLICATIONS/ National Conference papers (in English):**

1. Kovacevic M., "Demonstration of the photoelectric effect by one mechanical model," *Phys. Congress Serbia and Montenegro*, Petrovac, (2004) 83-86
2. Babovic V., Kovacevic M., and Kanjevac K., "Characteristic impedance of the plasma waveguide: treatment by the fixed point method," *Phys. Congress, Serbia and Montenegro*, Petrovac, (2004) 35-38
3. Nikezic D, Yu K.N., Kovacevic M., Stevanovic N., Krstic D., Kostic D., Janicijevic A., "The Optical Characters of the particle trace," *Phy. Congress, Serbia and Montenegro, Petrovac*, (2004) 135-138
4. Kovacevic, M., Babovic, V., "Evaluating of the dispersion relation of the surface electron plasma waves," *X Conference of Physicists of Yugoslavia, V. Banja 27-29. March (2000), Proc. II., 733-736*

## **SELECTED PUBLICATIONS/ National Conference papers (in Serbian):**

1. Kovačević M., "Jedan opšti algoritam za rešavanje računskih zadataka iz fizike," Republički seminar o nastavi fizike, V. Banja 2003, Zbornik radova 100-103.
2. Kovačević M., "Demonstracija trećeg Njutnovog zakona," Republički seminar o nastavi fizike, Soko Banja 2004, Zbornik radova 147-151.
3. Kovačević M., "Šta svaki profesor fizike treba da zna o optičkom vlaknu," Republički seminar o nastavi fizike, V. Banja 2007, Zbornik radova 182-187.
4. Kovačević M., Popović M., Spasić A., "Merenje osvetljenosti pomoću luksmetra," Republički seminar o nastavi fizike, V. Banja, 2009, Zbornik radova 118-122.
5. Kovačević M., Jovanović S., "Određivanje magnetske permabilnosti vakuuma  $\mu_0$ ," Republički seminar o nastavi fizike, V. Banja, 2009, Zbornik radova 123-126.
6. Kovačević M., Akisć N., "Merenje koeficijenta slabljenja u plastičnom optičkom vlaknu," Republički seminar o nastavi fizike, V. Banja, 2010, Zbornik radova.
7. Kovačević M., Simić S., "Jedno preciznije određivanje ubrzanja zemljine teže," Republički seminar o nastavi fizike, V. Banja, 2010, Zbornik radova.

## **SELECTED PUBLICATIONS/ Physics Education (in Serbian):**

1. Babović V., Kovačević M., Kako "osporiti" zakon spojenih sudova, Fizika i tehnika, Valjevo, 1995.
2. Kovačević M., Metodčki putevi, Prosvetni pregled, Pedagoška praksa 2203 (29) 2003.
3. Kovačević M., Začarani krug, Prosvetni pregled, Pedagoška praksa 542, 2003.
4. Kovačević M., Njutr u školskoj laboratoriji, Prosvetni pregled, Pedagoška praksa, br. 525, 2003.
5. Kovačević M., Od kviza do eksperimenta, Prosvetni pregled, Pedagoška praksa 538, 2003.
6. Kovačević M., Tabla kao olakšanje, Prosvetni pregled, Pedagoška praksa 536, 2003.
7. Kovačević M., Učenje kroz slike, Prosvetni pregled, Pedagoška praksa 533, 2003.
8. Kovačević M., Demonstracijom protiv dosade, Prosvetni pregled, Pedagoška praksa, br. 531, 2003.
9. Čabrić B, Kovačević M., Nauka o materijalima, Prosvetni pregled, Pedagoška praksa, 2003.
10. Čabrić B., Kovačević M., Kristalizaciona klupa, Prosvetni pregled, Pedagoška praksa 518, 2002.
11. Kovačević M., Rešenje od zlata, Prosvetni pregled, Pedagoška praksa 575. Oktobar 2004.
12. Kovačević M., Na početku bez formula, Prosvetni pregled, Pedagoška praksa, Maj 2006.
13. Kovačević M., Jovanović S., Magnteno polje Zemlje. Teorija i eksperiment, Seminar o nastavi fizike, PMF Kragujevac, Januar 2011.

**OTHER RELEVANT ACTIVITIES/ Mentor/ Membership in various commissions for BSc, MSc and PhD:**

1. Janković Ivan, *Elektromagnetna indukcija u osnovnoj i srednjoj školi* (BSc in physics, mentor: M. Kovačević, 2009)
2. Josić Miloš, *Modelovanje disperzije u gradijentnom optičkom vlaknu*, (BSc in physics, mentor: M.Kovačević, 2009)
3. Knežević Vladimir, *Demonstracioni eksperimenti iz elektrostatike*, (BSc in physics, mentor: M. Kovačević, 2009)
4. Stefanović Vladan, *Talasni modovi u optičkom vlaknu sa stepenastom raspodelom indeksa prelamanja* (BSc in physics, mentor: M. Kovačević, 2010)
5. Aćimović Jovan, *Fotodetektor i njihova primena u optičkim komunikacijama*, (BSc in physics, mentor: M. Kovačević, 2011).
6. Kačarević Goran, *50 godina istraživanja fuzije*, (BSc in physics, mentor: M. Kovačević, 2011).
7. Simović Ana, (BSc, 2009, membership in commission)
8. Janković Jelena, (BSc, 2009, membership in commission)
9. Krstojkić Marina, (BSc, 2009, membership in commission)
10. Antonijević Sandra (BSc, 2009, membership in commission)
11. Jelić Sanela (BSc, 2010, membership in commission)
12. Milić Ana (BSc, 2010, membership in commission)
13. Janković Ana (BSc, 2010, membership in commission)
14. Ralević Dragica (BSc, 2010, membership in commission)
15. Tomović Goran, (BSc, 2010, membership in commission)
16. Marinković Aleksandra (BSc, 2010, membership in commission)
17. Vranić Milan, *Simulacija različitih geometrijskih struktura plastičnih optičkih vlakana*, (Master diploma, Novi Sad, 2010, membership in commission).

## OTHER RELEVANT ACTIVITIES

M. Kovačević, *Nobelova nagrada za fiziku u 2009. g.*, (predavanje, Institut za fiziku, PMF Kragujevac, Novembar 2009)

### Activities in the Regional center of excellence of Kragujevac

#### SELECTED PUBLICATIONS (in Serbian):

1. Milena Popović, Andrea Spasić, "Eksperimentalna provera Lambertovog zakona pomoću fluksmetra" (mentor: **M. Kovačević**, Kragujevac, 2008)
2. Stefan Jovanović, "Provera Faradejevog zakona elektromagnetne indukcije", (mentor: **M. Kovačević**, Kragujevac, 2009).
3. Andrea Spasić, Milena Popović, „Kosi hitac u vazduhu: simulacija kretanja golf loptice”, (mentor: **M. Kovačević**, Kragujevac, 2009).
4. Stefan Jovanović, „Merenje magnetne permeabilnosti nepoznate supstancije pomoću Gijeve metode”, (mentor: **M. Kovačević**, Kragujevac, 2010).
5. Nikola Samarđžić, „Određivanje ubrzanja zemljine teže“, (mentor: **M. Kovačević**, Kragujevac, 2010).
6. Vuk ilić, Zdravko Kosanović, „Potraga za Higsovim bozonom“, (mentor: **M. Kovačević**, Kragujevac, 2010).
7. Nevena Aksić, „Slabljenje svetlosti u plastičnom optičkom vlaknu“, (mentor: **M. Kovačević**, Kragujevac, 2010).
8. Andrea Spasić, Milena Popović, „Gvozdena ptica“, (mentor: **M. Kovačević**, Kragujevac, 2010).
9. Stefan Jovanovic, „Merenje horizontalne komponente Zemljinog magnetnog polja“, (mentor: **M. Kovačević**, Kragujevac, 2011).
10. Nevena Aksić, „Spektar atoma vodonika i određivanje Ridbergove konstante“, (mentor: **M. Kovačević**, Kragujevac, 2011).