

Curriculum Vitae

Personal data

Name and Surname: Stevan Maćešić
Date of birth: 09.01.1985
Address: University of Belgrade, Faculty of Physical Chemistry,
Studentski Trg 12, 11158 Belgrade, Serbia.
Phone number: +381-11-2630862
E-mail: stevan.macesic@ffh.bg.ac.rs

Scientific position: Research Associate
Affiliation: University of Belgrade, Faculty of Physical Chemistry, Studentski Trg
12-16, Belgrade.

Education

2014 PhD, Faculty of Physical Chemistry, University of Belgrade, Serbia.
2010 Graduate studies, Faculty of Physical Chemistry, University of
Belgrade, Serbia.

Professional career

2015-present **Research Associate**, University of Belgrade, Faculty of Physical
Chemistry
2012-2015 **Research assistant**, University of Belgrade, Faculty of Physical
Chemistry
2011-2012 **Junior Researcher**, University of Belgrade, Faculty of Physical
Chemistry

Research interests

My research interests are oriented toward theoretical and experimental investigation of the complex reaction systems such as Bray-Liebhafsky (BL), Belousov-Zhabotinskii (BZ), Briggs-Rauscher (BR) and palladium-catalysed phenylacetylene oxidative carbonylation (PCPOC) oscillatory reactions as well as hypothalamic-pituitary-adrenal axis, with aim to determine their mechanisms, which allow them to exhibit various types of dynamics under conditions far from equilibrium. Another important aspects of my research is development of the software which allow efficient performing of the bifurcation analysis, simulation of physicochemical systems and determination of the kinetic models in solid state chemistry.

Participation in scientific projects

2011-present Project "*Dynamics of Nonlinear Physicochemical and Biochemical Systems with Modeling and Predicting their Behavior under Nonequilibrium Conditions*" funded by: Ministry of Education, Science and Technological Development of the Republic of Serbia, Grant No. 172015
2013- *COST Action CM1304* Emergence and Evolution of Complex Chemical Systems

2016- Personalised Pulsatile Materials (PPM)
EPSRC Reference: EP/N033655/1

Professional Development

2015 International WE Heraeus Physics School on "Model systems for understanding biological processes" at the "Physikzentrum Bad Honnef", Germany

2016 Systems Chemistry Winter School 2016, Vienna, Austria

Publications

Journal Papers

- [1] B. Stanković, Ž. Čupić, S. Maćešić, N. Pejić, Lj. Kolar-Anić, Complex bifurcations in the oscillatory reaction model, *Chaos Solitons Fractals*. 87 (2016) 84–91. doi:10.1016/j.chaos.2016.03.013.
- [2] V.M. Marković, Ž. Čupić, S. Maćešić, A. Stanojević, V. Vukojević, Lj. Kolar-Anić, Modelling cholesterol effects on the dynamics of the hypothalamic-pituitary-adrenal (HPA) axis, *Math. Med. Biol. J. IMA*. 33 (2016) 1–28. doi:10.1093/imamm/dqu020.
- [3] Ž. Čupić, V.M. Marković, S. Maćešić, A. Stanojević, S. Damjanović, V. Vukojević, Lj. Kolar-Anić, Dynamic transitions in a model of the hypothalamic-pituitary-adrenal axis, *Chaos Interdiscip. J. Nonlinear Sci.* 26 (2016) 33111. doi:10.1063/1.4944040.
- [4] I.N. Bubanja, S. Maćešić, A. Ivanović-Šašić, Ž. Čupić, S. Anić, Lj. Kolar-Anić, Intermittent chaos in the Bray–Liebhafsky oscillator. Temperature dependence, *Phys. Chem. Chem. Phys.* 18 (2016) 9770–9778. doi:10.1039/C6CP00759G.
- [5] S. Maćešić, Ž. Čupić, Lj. Kolar-Anić, Bifurcation analysis of the reduced model of the Bray–Liebhafsky reaction, *React. Kinet. Mech. Catal.* 118 (2016) 39–55. doi:10.1007/s11144-016-1000-2.
- [6] N. Cvetković, S. Maćešić, Jelena D. Jovanović, B. Adnađević, Kinetics of Exchange of the Water Absorbed in Poly (Acrylic Acid) Hydrogel with Ethanol, *Int. Res. J. Pure Ap. Chem.* 12 (2016) 1-9. doi : 10.9734/IRJPAC/2016/27998.
- [7] S. Maćešić, Ž. Čupić, S. Anić, Lj. Kolar-Anić, Autocatalator as the source of instability in the complex non-linear neuroendocrine model, *Int. J. Non-Linear Mech.* 73 (2015) 25–30. doi:10.1016/j.ijnonlinmec.2014.11.008.
- [8] S.R. Maćešić, Ž.D. Čupić, S.M. Blagojević, N.D. Pejić, S.R. Anić, Lj.Z. Kolar-Anić, Current rates and reaction rates in the stoichiometric network analysis (SNA), *Open Chem. (former Central European Journal of Chemistry)* 13 (2014). doi:10.1515/chem-2015-0077.
- [9] Ž.D. Čupić, Lj.Z. Kolar-Anić, S.R. Anić, S.R. Maćešić, J.P. Maksimović, M.S. Pavlović, M.C. Milenković, I.N.M. Bubanja, E. Greco, S.D. Furrow, R. Cervellati, Regularity of Intermittent Bursts in Briggs-Rauscher Oscillating Systems with Phenol, *Helv. Chim. Acta.* 97 (2014) 321–333. doi:10.1002/hlca.201300178.
- [10] S. Maćešić, Ž. Čupić, Lj. Kolar-Anić, Model of the nonlinear reaction system with autocatalysis and autoinhibition: Stability of dynamic states, *Hem. Ind.* 66 (2012) 637–646. doi:10.2298/HEMIND120210034M.

Conference Papers and Poster Presentations

1. **S. Maćešić**, Advances in the modeling of the oscillating chemical reactions, *Physical Chemistry 2016* (13th International Conference on Fundamental and Applied Aspects of Physical Chemistry), *Proceedings*, Željko Čupić and Slobodan Anić (Eds.), *Society of Physical Chemists of Serbia*, Belgrade, Serbia (2016), Vol.1, 277-284. (ISBN:978-86-82475-34-7) (Sekcijsko predavanje)
2. **S. Maćešić**, B. Adnađević, N. Cvetković, Fractal kinetics as a tool for modelling of isothermal kinetics of exchange of water absorbed in silica hydrogel with ethanol, *Physical Chemistry 2016* (13th International Conference on Fundamental and Applied Aspects of Physical Chemistry), *Proceedings*, Željko Čupić and Slobodan Anić (Eds.), *Society of Physical Chemists of Serbia*, Belgrade, Serbia (2016), Vol.1, 263-266. (ISBN:978-86-82475-34-7)
3. **S. Maćešić**, Ž. Čupić, Lj. Kolar-Anić, Method for Detection of Andronov-Hopf Bifurcation in the Models of Chemical Reaction, 4th International Conference, Contemporary Problems Of Mathematics, Mechanics And Informatics (CPMMI 2016), Book of Abstracts , Č. Doličanin (Ed.), State University of Novi Pazar, Novi Pazar, Serbia, (2016), 32-33.
4. A. Stanojević, V. Marković , Ž. Čupić, **S. Maćešić**, V. Vukojević, Lj. Kolar-Anić, Mathematical Modeling of the Hypothalamic-Pituitary-Adrenal Axis Dynamics in Rats, *Belgrade Bioinformatics Conference (BelBi) 2016*, Belgrade, Serbia, (2016), 99.
5. A. Stanojević, Ž. Čupić, V. M. Marković, **S. Maćešić**, V. Vukojević, Lj. Kolar-Anić, Modeling the effects of stress on adrenal progesterone dynamics, *2nd International Symposium on Advances in PCOS and Women's Health*, Belgrade, Serbia, (2016), 47.
6. A. Stanojević, Ž. Čupić, V. M. Marković, **S. Maćešić**, Lj. Kolar-Anić, V. Vukojević, Modelling ethanol influence on the dynamics of the hypothalamic-pituitary-adrenal (HPA) Axis, *EMBO | EMBL Symposium: Biological Oscillators: Design, Mechanism, Function*, EMBL Advanced Training Centre Heidelberg, Germany, 12-14 November, (2015), 106.
7. B. Stanković, Ž. Čupić, **S. Maćešić**, N. Pejić, Lj. Kolar-Anić, Merging and annihilation of saddle loop, supercritical and subcritical Andronov-Hopf bifurcations, *Physical Chemistry 2014, Proceedings of the 12th International Conference on Fundamental and Applied Aspects of Physical Chemistry*, Belgrade, Serbia, (2014), 356-359.
8. **S. Maćešić** , A. Stanojević, Ž. Čupić, Lj. Kolar-Anić, Deriving conditions for appearance of Andronov-Hopf and saddle-node bifurcations in the model of the hypothalamic-pituitary-adrenal axis, *International WE Heraeus Physics School on "Model systems for understanding biological processes"*, Bad Honnef, Germany, 22-27 February, (2014), P18.
9. V. Marković, A. Stanojević, **S. Maćešić**, Z. Čupić, V. Vukojević, Lj. Kolar-Anić Dynamic states of Cortisol as a Function of Cholesterol Concentration in a Model Of HPA Axis Dynamics, *Fourth Serbian (29th Yu) Congress On Theoretical and Applied Mechanics*, Vrnjačka Banja, Serbia 4-7 June, (2013), 889-894.
10. I. N. Bubanja, **S. Maćešić**, J. Maksimović, M. Milenković, E. Greco, R. Cervellati, S.D. Furrow, Z. Čupić, S. Anić, Lj. Kolar Anić, Intermittences or Bursting Oscillations in Briggs-Raucher Oscillating System, *Fourth Serbian (29th Yu) Congress On Theoretical and Applied Mechanics*, Vrnjačka Banja, Serbia 4-7 June, (2013), 899-902
11. V. Marković, S. Maćešić, S. Damjanović, **Lj. Kolar-Anić**, Inclusion of cholesterol in hypothalamic-pituitary-adrenal axis stoichiometric model, *Physical Chemistry 2012, Proceedings of the 11th International Conference on Fundamental and Applied Aspects of Physical chemistry*, *Society of Physical Chemists of Serbia*, Belgrade, Serbia, (2012), Vol. 1, 264-266.

Languages

- English (fluent)
- French (basics)
- Serbian (mother tongue)

Special Skills

- good programming skills in MATLAB;
- basic programming skills in programming languages C++, Javascript, HTML, CSS;

Other Professional Activities

2012, 2014, 2016

Member of the Scientific Committee of the International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, Serbia

Membership In Professional Associations

Society of Physical Chemists of Serbia