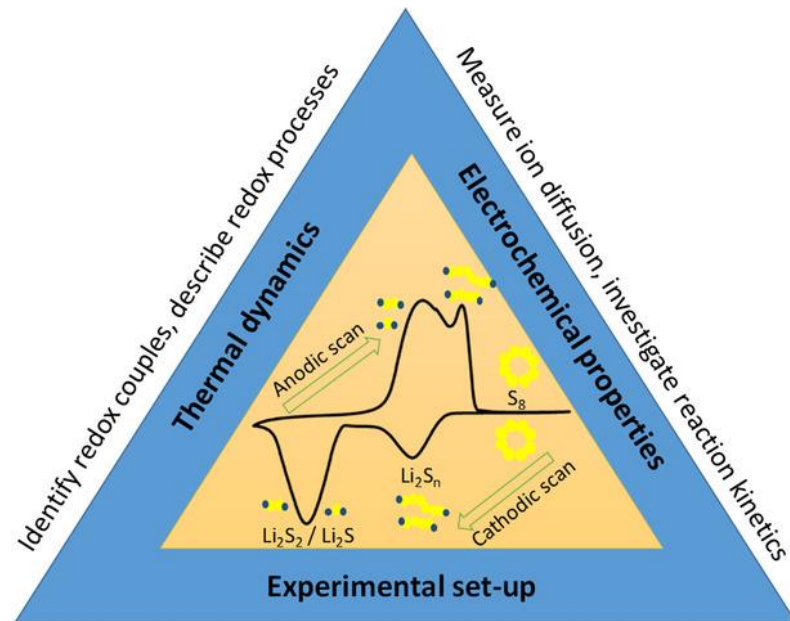


# Electrode mechanism considering reduction from adsorbed state and Oxidation from dissolved state

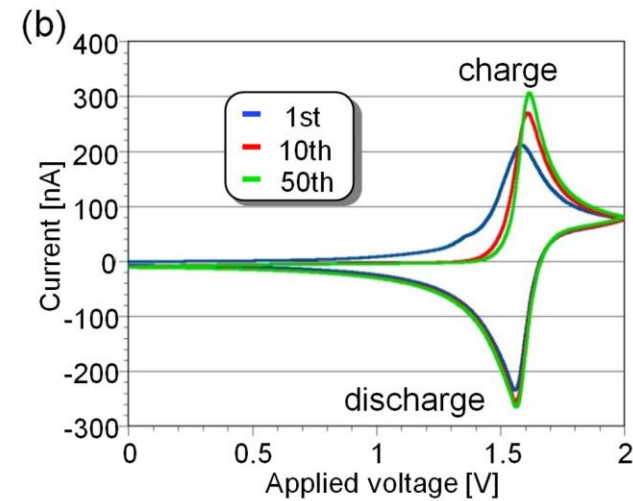
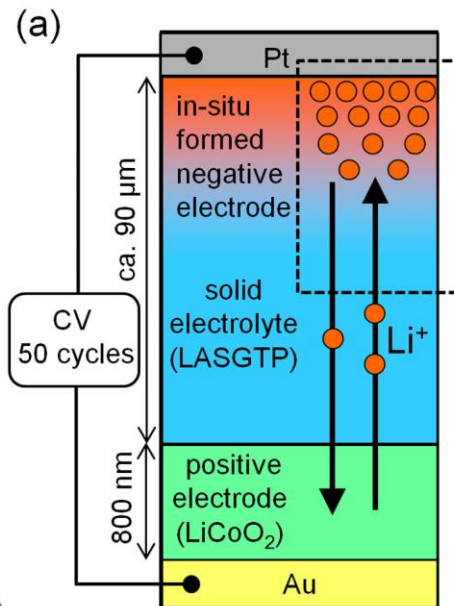
Rubin Gulaboski

Faculty of Medical Sciences

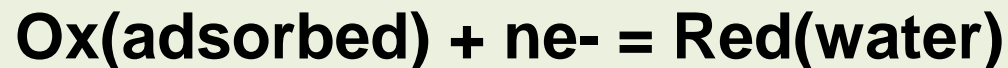
Goce Delcev University Stip, MACEDONIA

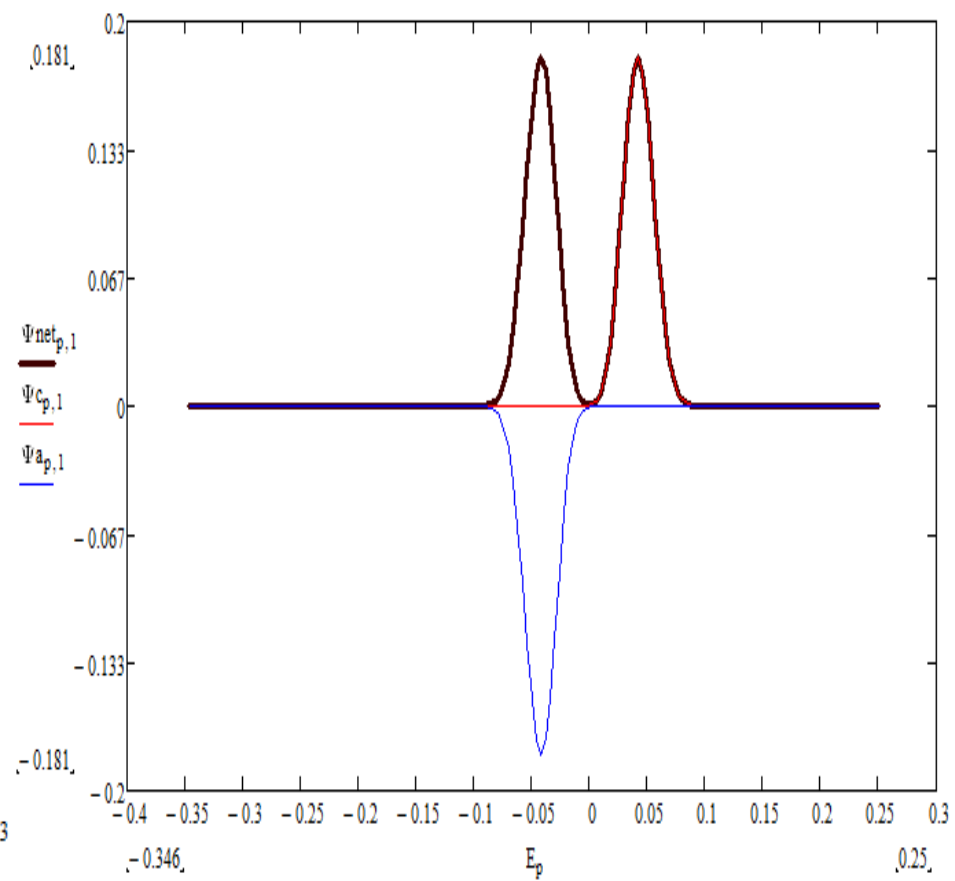
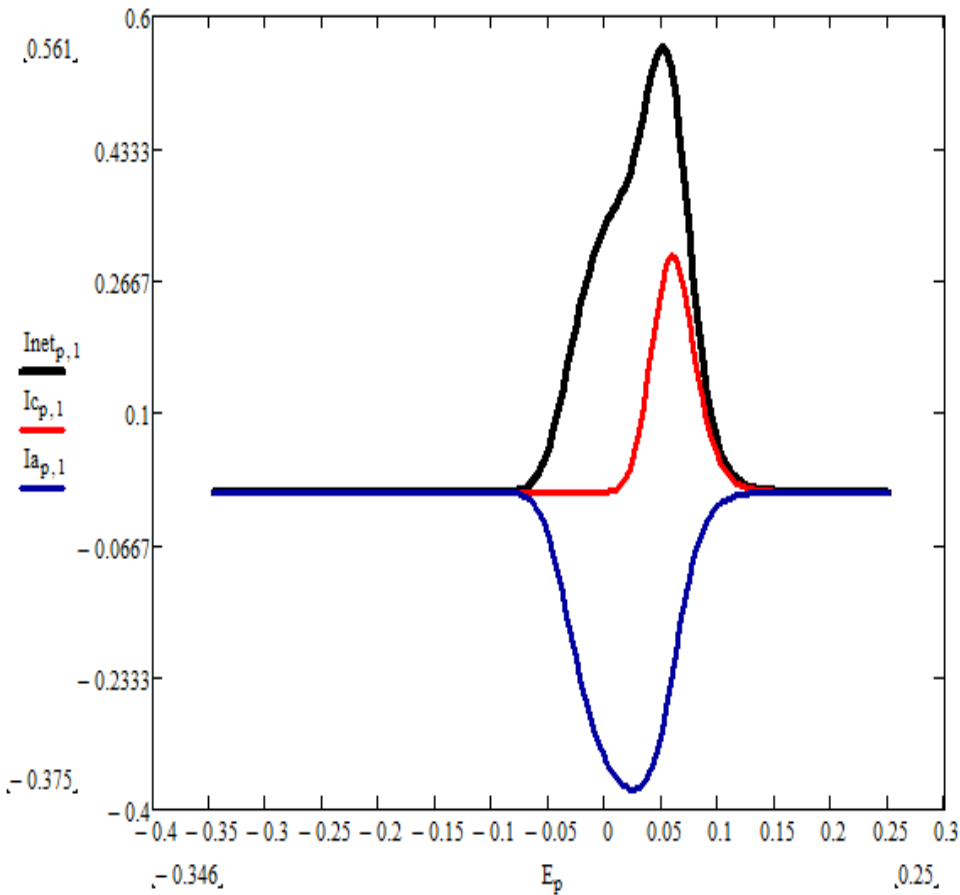


3-electrode, regular 2-electrode and special a/symmetrical cells



Mechanism considered in this work is





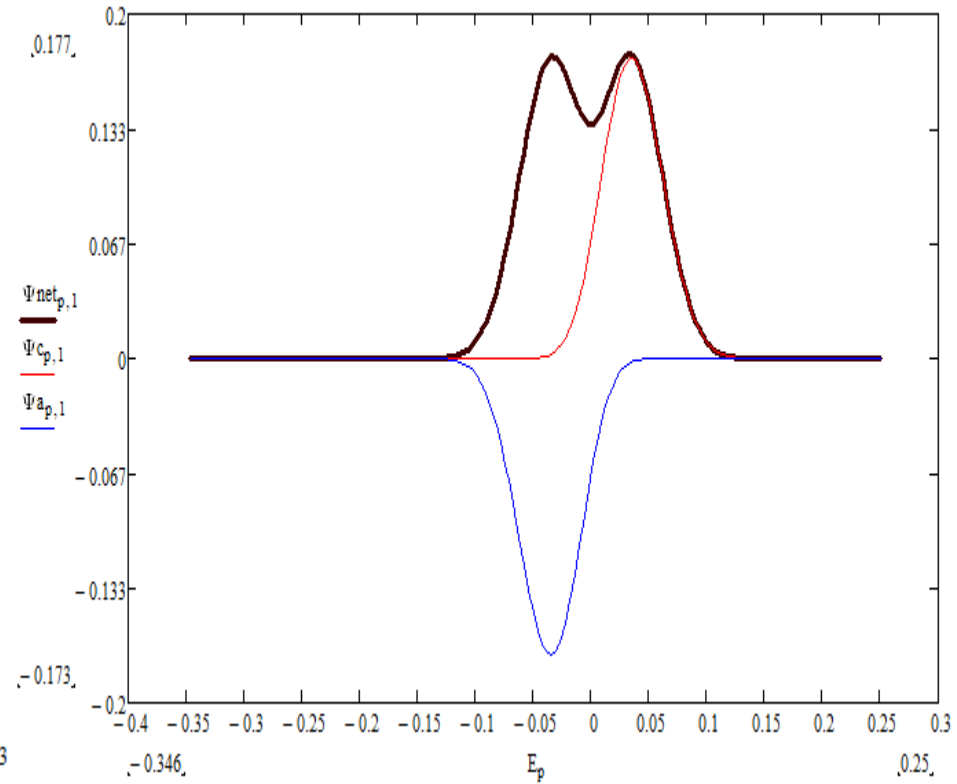
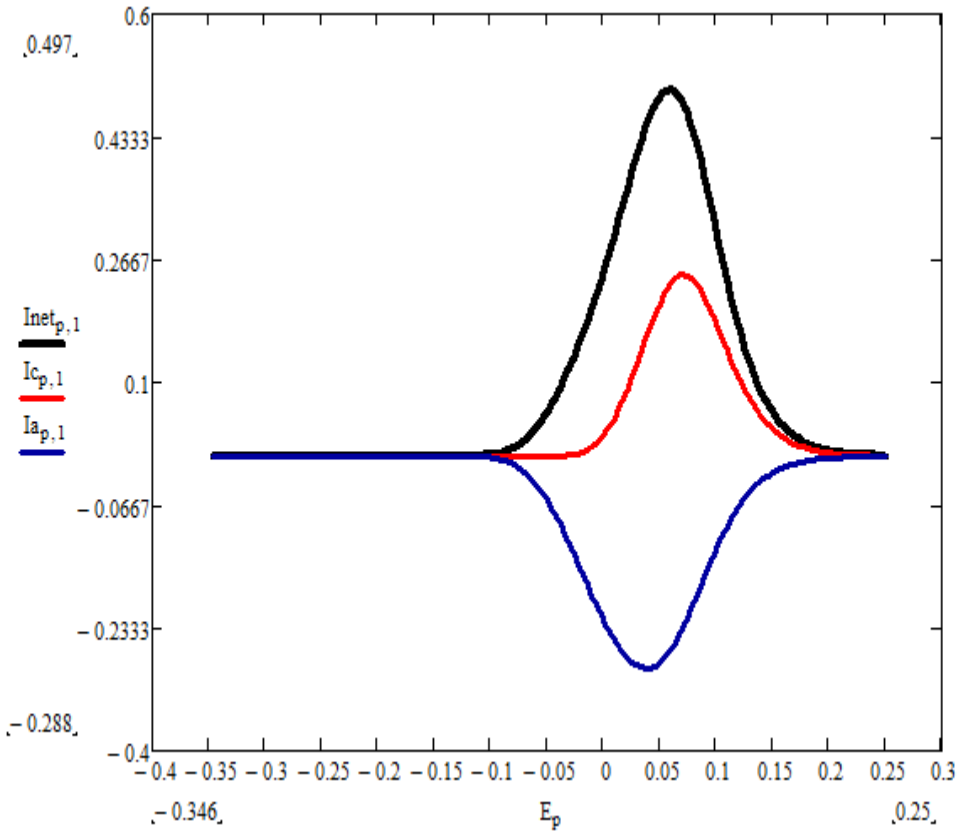
Levo e HIBRID Ox(ads) + ne- = Red(water)

desno e surface Ox(ads) + ne- = Red(ads)

Log(KET) is 0.51  
n is 2

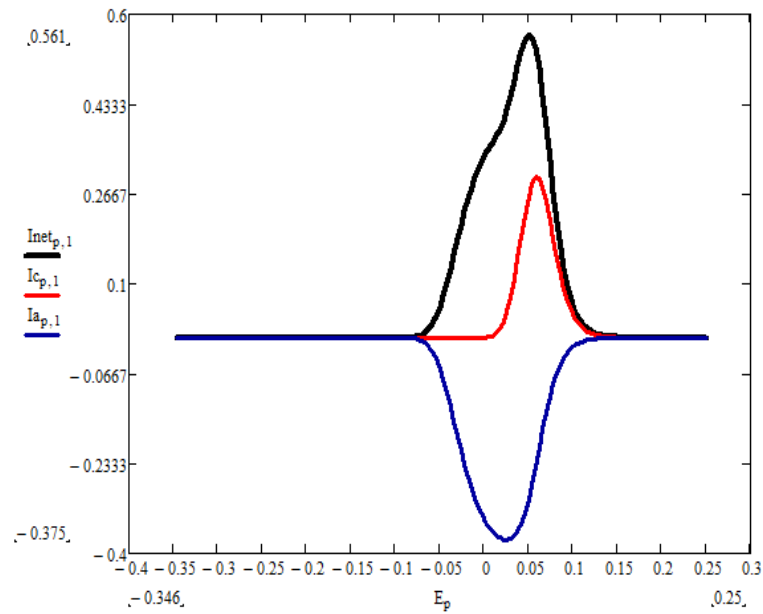
Levo e HIBRID desno e surface Ox(ads) + ne- = Red(ads)

Ovde broj na elektroni n = 1, prethoden slide n bese 2



Log(KET) is 0.51

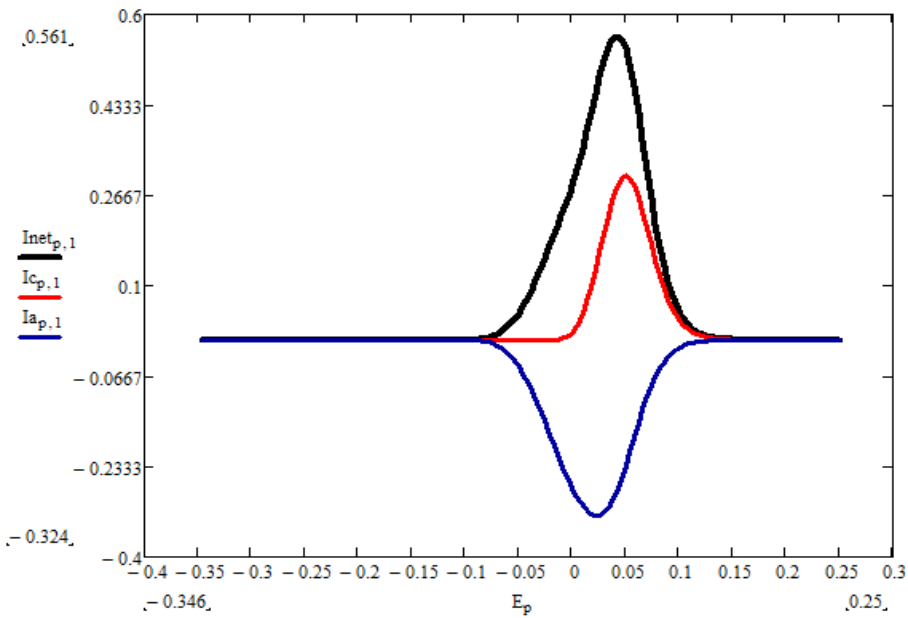
n is 1



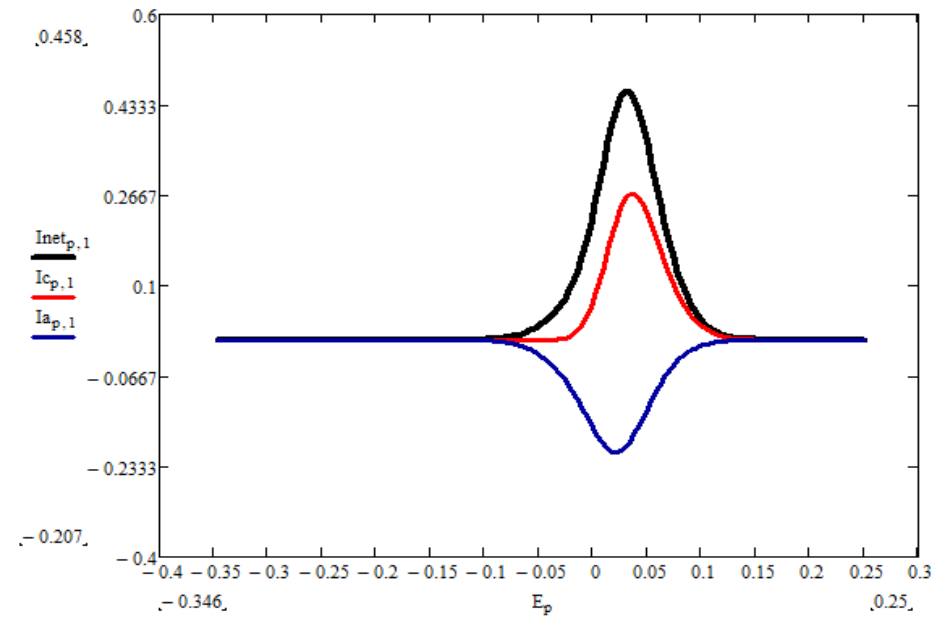
Ova e Hibriden model  
 $Ox(ads) + 2 e^- = Red(w)$

Pri razni KET

Log(KET) is 0.51  
 n is 2



Log(KET) is 0.12  
 n is 2



Log(KET) is -0.3437  
 n is 2

1. V. Mirceski, S. Komorsky Lovric, M. Lovric, **Square-wave voltammetry, Theory and application**, Springer, 2008
2. **Rubin Gulaboski**, Theoretical contribution towards understanding specific behaviour of “simple” protein-film reactions in square-wave voltammetry”, *Electroanalysis*, 31 (2019) 545-553.
3. V. Mirceski, D. Guziejewski, L. Stojanov, **Rubin Gulaboski**, Differential Square-Wave Voltammetry, *Analytical Chemistry* 91 (2019) 14904-14910 <https://pubs.acs.org/doi/abs/10.1021/acs.analchem.9b03035>.
4. **Rubin Gulaboski**, P. Kokoskarova, S. Petkovska, Time independent methodology to assess Michaelis Menten constant exploring electrochemical-catalytic mechanism in protein-film cyclic staircase voltammetry, *Croat. Chem. Acta*, 91 (2018) 373-382.
6. **Rubin Gulaboski**, V. Markovski, and Z. Jihe, *Redox chemistry of coenzyme Q—a short overview of the voltammetric features*, *Journal of Solid State Electrochemistry* 20 (2016) 3229-3238.
7. Haeri, Haleh H. I. Bogeski, **Rubin Gulaboski**, V. Mirceski, M. Hoth, and R. Kappl, *An EPR and DFT study on the primary radical formed in hydroxylation reactions of 2,6-dimethoxy-1,4-benzoquinone*. *Mol. Phys.* 114 (2016) 1856-1866.
8. V. Mirceski, D. Guziejewski and **Rubin Gulaboski**, Electrode kinetics from a single square-wave voltammograms, *Maced. J. Chem. Chem. Eng.* 34 (2015) 1-12.
9. **Rubin Gulaboski** and V. Mirceski, New aspects of the electrochemical-catalytic (EC') mechanism in square-wave voltammetry, *Electrochimica Acta*, 167 (2015) 219-225.

**11. R. Gulaboski, S. Petkovska, A Time-Independent Approach to Evaluate the Kinetics of Enzyme-Substrate Reactions in Cyclic Staircase Voltammetry, ANALYTICAL & BIOANALYTICAL ELECTROCHEMISTRY 10 (5), 566-575**

**13. R. Gulaboski, V. Markovski, and Z. Jihe, Redox chemistry of coenzyme Q—a short overview of the voltammetric features, J. Solid State Electrochem., 20 (2016) 3229-3238.**

**16. V. Mirceski, Valentin and R. Gulaboski, Recent achievements in square-wave voltammetry (a review). Maced. J. Chem. Chem. Eng. 33 (2014). 1-12.**

**17. V. Mirceski, R. Gulaboski, M. Lovric, I. Bogeski, R. Kappl and M. Hoth, Square-Wave Voltammetry: A Review on the Recent Progress, Electroanal. 25 (2013) 2411–2422.**

**19. V. Mirčeski and R. Gulaboski, "Surface Catalytic Mechanism in Square-Wave Voltammetry", *Electroanal.* 13 (2001) 1326-1334.**

22. Gulaboski R. in *Electrochemical Dictionary*, A J. Bard, G. Inzelt, F. Scholz (eds.) Springer, 2nd Edition in 2012.

25. Rubin Gulaboski, **Theoretical Contribution Towards Understanding Specific Behaviour of "Simple"**

**Protein-film Reactions in Square-wave Voltammetry, *Electroanalysis* 2018,**

<https://doi.org/10.1002/elan.201800739>

**26. R. Gulaboski, V. Mirčeski, M. Lovrić and I. Bogeski, "Theoretical study of a surface electrode reaction preceded by a homogeneous chemical reaction under conditions of square-wave voltammetry." *Electrochem. Commun.* 7 (2005) 515-522.**

28. R. Gulaboski, C. M. Pereira. M. N. D. S. Cordeiro, I. Bogeski, E. Fereira, D. Ribeiro, M. Chirea and A. F. Silva,

"Electrochemical study of ion transfer of acetylcholine across the interface of water and a lipid-modified 1,2-dichloroethane " *J. Phys. Chem. B* 109 (2005) 12549-12559.

31. V. Mirčeski and R. Gulaboski, "A Theoretical and Experimental Study of Two-Step Quasireversible Surface Reaction by Square-Wave Voltammetry" *Croat. Chem. Acta* 76 (2003) 37-48.

34. **Rubin Gulaboski**, Fernanda Borges, CM Pereira, M. N. D. S Cordeiro, J Garrido, AF Silva, ***Combinatorial chemistry & high throughput screening*** 10 (2007), 514-526

35. V Mirceski, **R Gulaboski**, Simple Electrochemical Method for Deposition and Voltammetric Inspection of Silver Particles at the Liquid– Liquid Interface of a Thin-Film Electrode, *The Journal of Physical Chemistry B* 110 (2006), 2812-2820

37. **Rubin Gulaboski**, Valentin Mirceski, Milivoj Lovric, Square-wave protein-film voltammetry: new insights in the enzymatic electrode processes coupled with chemical reactions, ***Journal of Solid State Electrochemistry***, 23 (2019) 2493-2506.

38. V Mirčeski, **Rubin Gulaboski**, F Scholz, ***Electrochemistry Communications*** 4 (2002), 814-819