Support of Macedonian Scientific Community via DAAD and ALEXANDER von HUMBOLDT

…A Short Story of Macedonian Way to Science…

Rubin Gulaboski

Goce Delcev University Stip, Macedonia

DAAD

Deutscher Akademischer Austausch Dienst

Alexander von Humboldt
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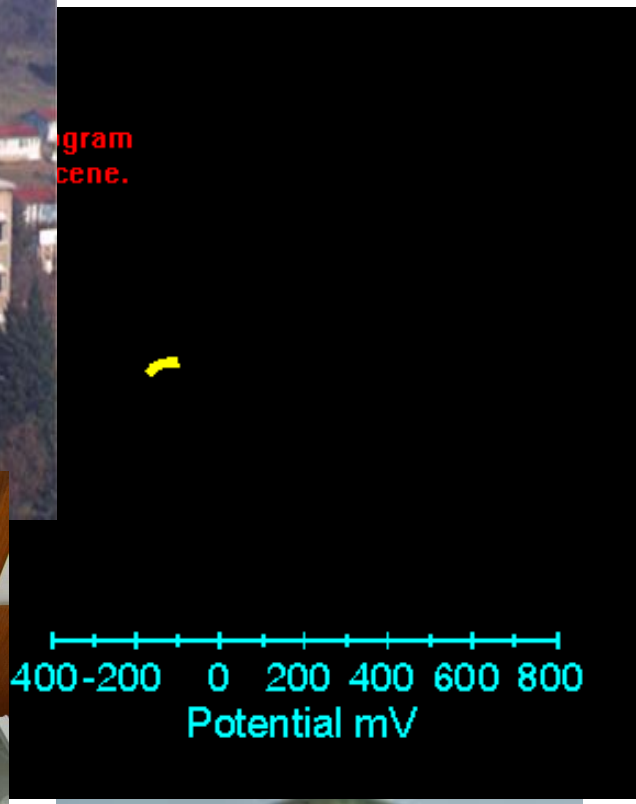
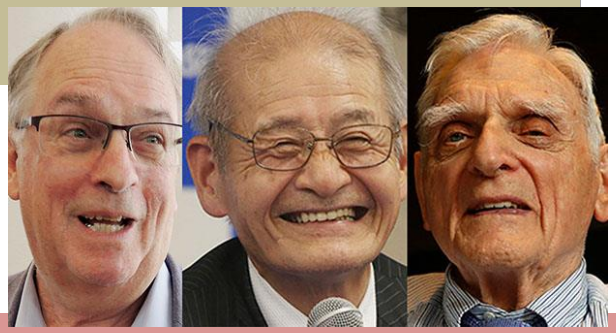


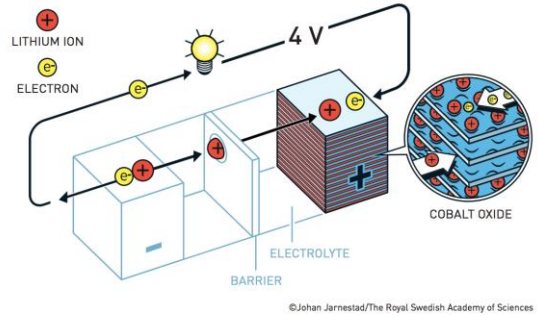
(Almost ☺) the same Lab….
where we started our road to science at the Institute of Chemistry in Skopje…we deal with ELECTROCHEMISTRY

The GOOD OLDY…PAR 384B
…our first Potentiostat…
…using the highly TOXIC
Mercury as working electrode

---but…Harsh conditions in Macedonia for doing Science in the end od 20th century

From 1997 to 2000 we published about 10 research works in highly respected Journals with Impact Factor…
We worked mainly on *developing* ***theories of electron transfer reactions under different conditions…***
relevant to describe important ***chemical features of many drugs and enzymes***….and confirming the theoretical results by experiments with some chemicals that we occasionally found in the Lab…





In that time, for us, MONEY WAS NOT A PROBLEM AT ALL…

…because we had NO SINGLE $ as a support for our work…

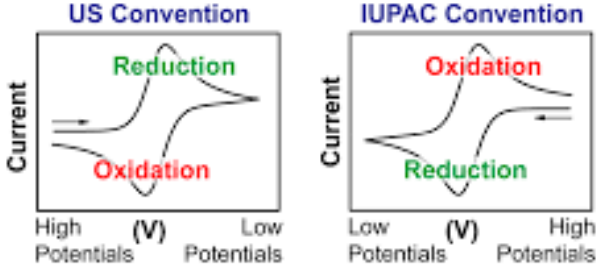
…so, we had to do something to continue to develop our research….

Eventually, Valentin contacted Milivoj and Shebojka Lovric Rudjer Boskovic, Zagreb---our first and most influential collaborators

Prof Fritz Scholz

Box 1. IUPAC or US convention?

Two conventions are commonly used to report CV data: the US convention, used herein, and the IUPAC convention. Visually, data reported in the two conventions will appear to be rotated by 180°.



In the Autumn of 2000 we both applied for Scholarships…
…Prof Mirceski applied for Alexander von Humboldt postdoctoral Fellowship…(about 500 each year for all disciplines all over the world!)

…and I APPLIED for a PhD Scholarship in DAAD

-Tough Selection Process:

- **Motivation Letter**
- **CV**
- **Recommendations**
- **Project Plan for the research activities**
- **Scientific Background**
- **Published papers**
- **Letter of Acceptance of the host**
- **INTERVIEW**

…and we both made it!!!

DAAD

Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

Funded in 1925, but closed afterwards and **re-established in 1950**

In 2018-over 130 000 students and researchers supported via DAAD

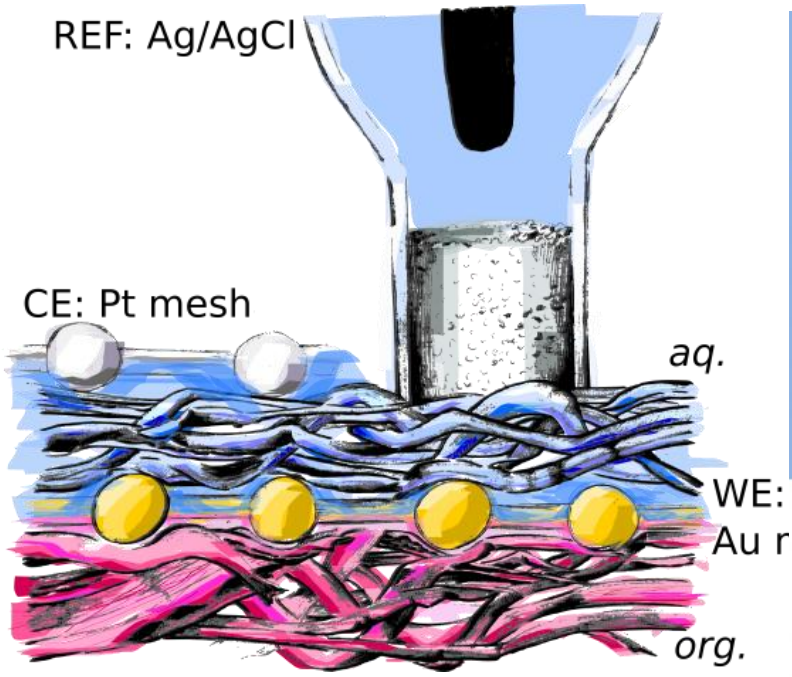
Annually more than 50 000 Scholarships for students to make science and research in Germany

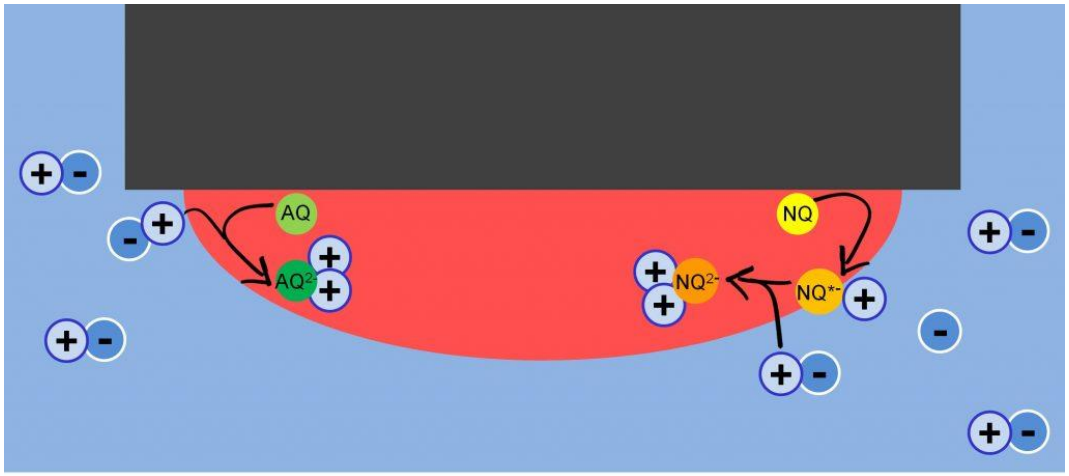
Annual Budget of over **550 million euros**

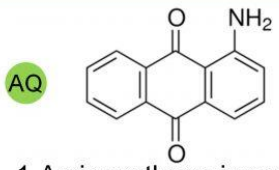
DAAD offers:
-PhD Scholarships
-Master
-Language Courses
-Research
-Short Stays
-Projects
….Awards

PhD Scholarship of DAAD-First Macedonian ---GREIFSWALD—Prof Fritz Scholz

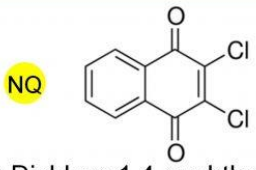
We started from October 2001 …and to June 2004…,
we made tremendous progress in a field unknown for us in
…Transfer of Ions across Biomimetic membranes
…linked to the efficiency in acting of many drugs







1-Aminoanthraquinone



2,3-Dichloro-1,4-naphthoquinone

In a period of three years we published about 20 papers and two monographs…
…….I was supported by DAAD and
Prof Mirceski was supported by Humboldt foundation

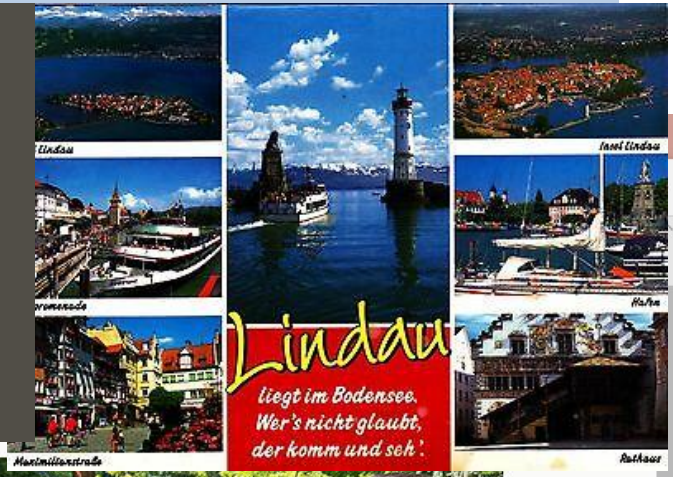
I was supported by DAAD from August 2001 to July 31st 2004

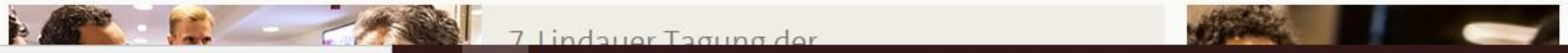
-Scholarship of about 1000 euros per month
-Health Insurance via DAAD
-Allowances for travelling home once a year
-Subsidies for the spouse and children
-Language course for me
-Language course for the family…
-Subsidies for taking part at scientific conferences
-Annual meetings
-Subsidies for printing the PhD thesis
…..Social events…

I got my PhD in June 2004 in Greifswald….

Meeting the Nobel Prize Laureates in LINDAU am Bodensee 1st-5th July 2002

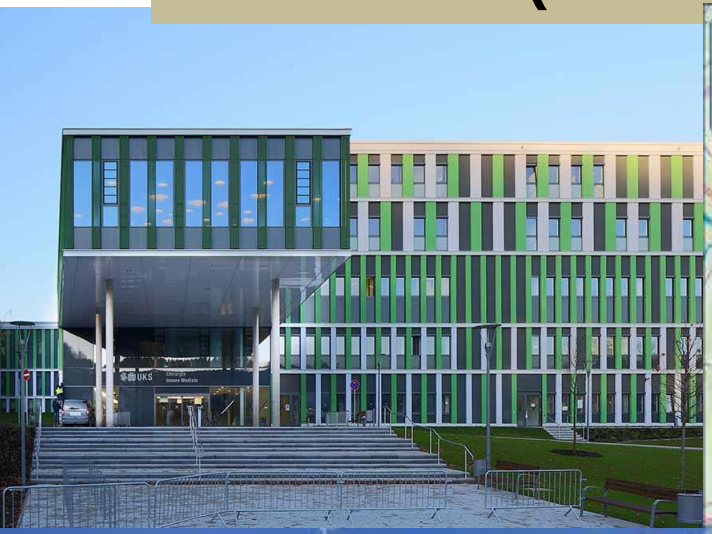
52nd Lindau Nobel Laureate Meeting
2002
Chemistry



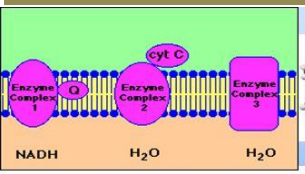


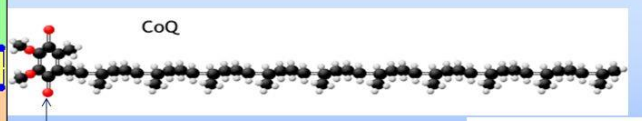
Shortly afterwards I moved to University of Porto, Portugal,
….my first postdoc until February 2008

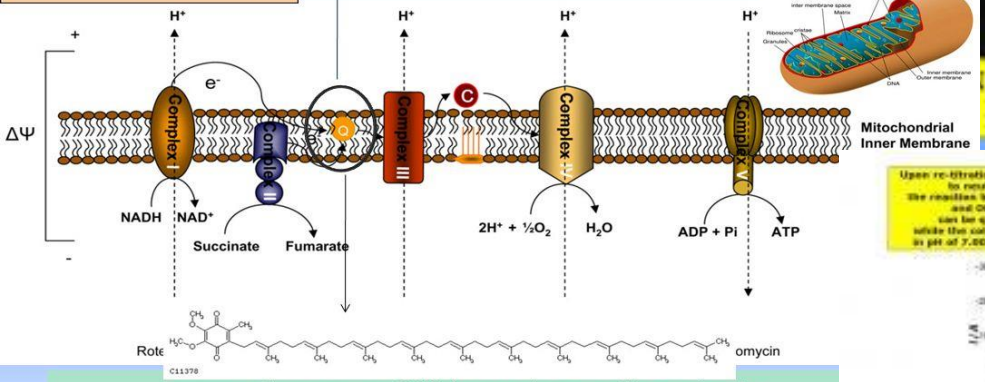
In 2007 I applied for an Alexander von Humboldt postdoctoral fellowship and I go it..
I moved to Faculty of Medicine, Saarland University in HOMBURG (GERMANY) from march 2008-sept 2009

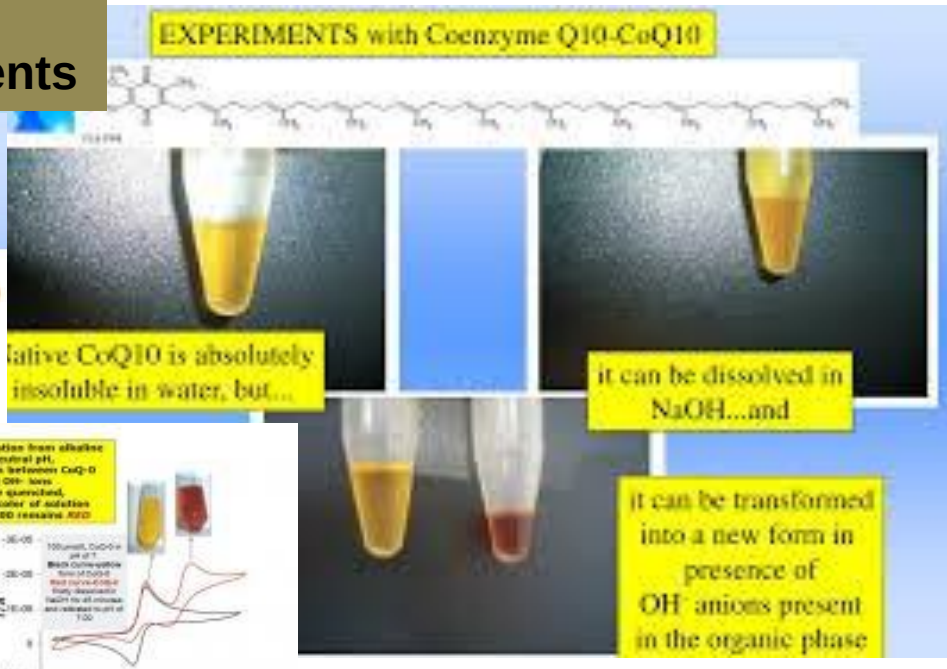


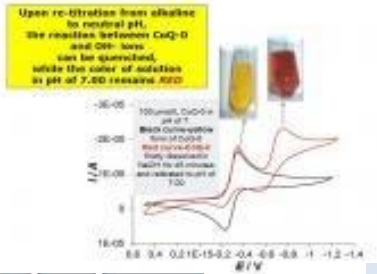
WE DISCOVERED NEW FUNCTIONS OF COENZYME Q-Highly Important Components









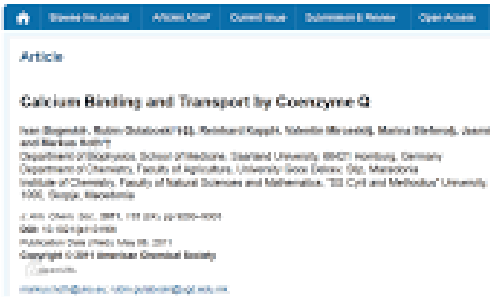


Coenzyme Q10 is a redox mediator in the mitochondrial electron transfer chain (METC)

JACS

SCIENTIFIC REPORTS

EU-Patent---Benzoquinone Based Antioxidants



Article

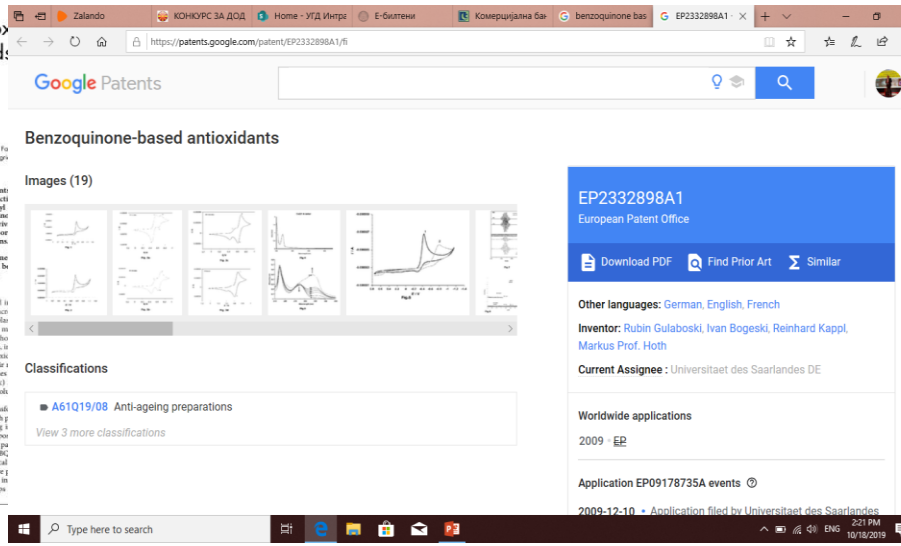
Calcium Binding and Transport by Coenzyme Q

SCIENTIFIC REPORTS

Hydroxylated derivatives of dimethox
1,4-benzoquinone as redox switchabl
earth-alkaline metal ligands and radi
scavengers

OPEN

Hydroxylated derivatives of dimethoxy-1,4-benzoquinone as redox switchable earth-alkaline metal ligands and radical scavengers



Meeting the German President in 2008-Berlin

I was supported by Humboldt from March 2009 to Sept 2009

-Scholarship of about 2600 euros per month
-Health Insurance
-Allowances for travelling home once a year
-Subsidies for the spouse and children
-Language course for me and the family…
-Subsidies for taking part at scientific conferences
-Annual meetings
-Social events…
….RETURN FELLOWSHIP in Macedonia for one year
….DONATION IN INSTRUMENTATION in Macedonia

What we achieved, what we got and what was our Impact to the others in last 18 years?

Two Alexander von Humboldt projects of about 120 000 euros… about 15 Posts for Young collaborators, and instrumentation

One MEGA-BIG project of DAAD---instrumentation, EXCHANGES and scholarships for about 150 students…1 million euros, 12 years

Collaboration with more of 100 scientists from over 30 universities

Return fellowships from A von Humboldt upon return-1 year

INSTRUMENTATION and literature from Alexander von Humboldt, worth about 30 000Eu each

Subsidies to attend and ORGANIZATION of conferences and subsidies to visit our hosts for 2months each year…

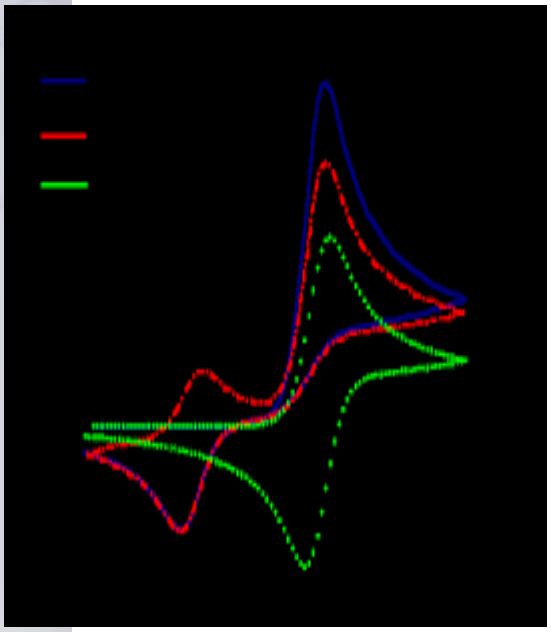
Over 200 students directly or indirectly (via our links) are now in Germany, Spain, Portugal, Italy, USA as PhD, Post. Doc, professors

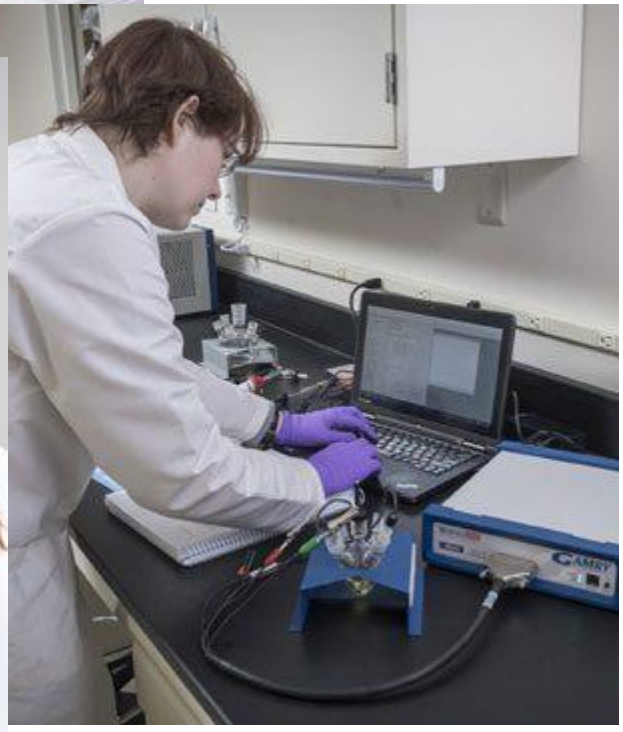
Hundreds of scientific works, books, patents…
….5 more Humboldtians

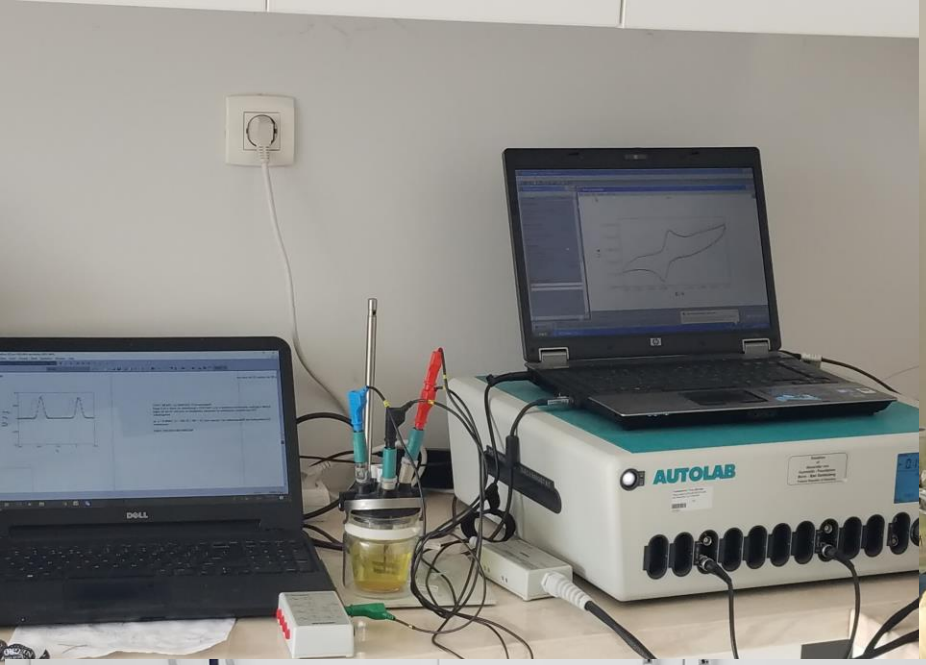
WHERE DID WE START FROM….WHERE ARE WE NOW?

We started working in Chemical Laboratory similar to this one….

and now…thanks to A von Humboldt






AUTOLAB

-FOUR Humboldtians from Institute of Chemistry SKOPJE….Five from the same Faculty

FOUR People from this INSTITUTE OF CHEMISTRY got the Alexander von Humboldt Scholarship/Award

Протест на вработените и студентите на Институтот за хемија: Итно да се одобрат вработувања на млади соработници

22.10.2019 Категорија: Образование

Академиците објавиле 107 научни трудови годинава, од нив 41 се со импакт-фактор

Меѓународното признание „Блаже Конески“ им беше доделено на Марија Солецка, Марија Бежановска и Борислав Павловски, кои се заслужни за промоција на македонскиот јазик и литература во Полска, Франција и Хрватска.

Напишано од **МИА** - 09/10/2019 14:06

439

From July 1st 2018 to October 31st 2019.

… so, *in a period slightly longer than a YEAR*…

prof MIRCESKI and prof GULABOSKI,

followed by couple of youngsters

PUBLISHED 22 PAPERS in

JOURNALS WITH IMPACT FACTOR

(total IF of > 60 in this period),

…but, **WITH ZERO $ SUPPORT of State MKD**!!!!

Conclusion: THE LESS MONEY WE GET for SCIENCE,

THE MORE SCIENTIFIC ACTIVITY WE HAVE!!!

Articles of MIRCESKI-GULABOSKi et al..July 1st 2018-Oct 31st 2019

1. Theoretical Contribution Towards Understanding Specific Behaviour of “Simple” Protein-film Reactions in Square-wave Voltammetry **R Gulaboski** Electroanalysis 31 (**2019**), 545-553

2. Time-Independent Methodology to Access Michaelis-Menten Constant by Exploring Electrochemical-Catalytic Mechanism in Protein-Film Cyclic Staircase Voltammetry R **Gulaboski**, P Kokoskarova, S Petkovska, Croatica Chemica Acta 91 (**2018**), 1-6

3. New Aspects of Protein-film Voltammetry of Redox Enzymes Coupled to Follow-up Reversible Chemical Reaction in Square-wave Voltammetry, **R Gulaboski**, M Janeva, V Maksimova, Electroanalysis 31 (**2019**), 946-956

4. A Time-Independent Approach to Evaluate the Kinetics of Enzyme-Substrate Reactions in Cyclic Staircase Voltammetry, **R Gulaboski**, S Petkovska Analytical and Bioanalytical Electrochemistry 10 (**2019**), 566-575

5. Protein-film Voltammetry of Two-step Electrode Enzymatic Reactions Coupled with an Irreversible Chemical Reaction of a Final Product-a Theoretical Study in Square-wave Voltammetry, P Kokoskarova, V Maksimova, M Janeva**, R Gulaboski**, Electroanalysis 31 (**2019**) 1-14

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

7. Theoretical Aspects of a Surface Electrode Reaction Coupled with Preceding and Regenerative Chemical Steps: Square-wave Voltammetry of a Surface CEC’Mechanism, P Kokoskarova, **R Gulaboski**, Electroanalysis 31 (**2019**) 17-34

8. Square-wave Voltammetry of Two-step Surface Electrode Mechanisms Coupled with Chemical Reactions–A Theoretical Overview, M Janeva, P Kokoskarova, V Maksimova, **R Gulaboski**, Electroanalysis 31 (**2019**) 50-67

9. Quantification of Hydrogen Peroxide by Electrochemical Methods and Electron Spin Resonance SpectroscopyR Gulaboski, V **Mirčeski**, R Kappl, M Hoth, M Bozem Journal of The Electrochemical Society 166 (**2019**), G82-G101

10 .Effect of bioactive compounds on antiradical and antimicrobial activity of extracts and cold-pressed edible oils from nutty fruits from Macedonia, Sanja Kostadinović Veličkovska, **Rubin Gulaboski**, Bertrand Matthäus, et al Journal of Food Measurement and Characterization 12 (**2018**), 2545-2552

11. Electrochemical Quantification of Extracellular Local H_2O_2 Kinetics Originating from Single CellsM Bozem, P Knapp, **V Mirčeski**, EJ Slowik, I Bogeski, R Kappl, ... Antioxidants & redox signaling 29 (**2018**), 501-517

12. Electrochemical Faradaic Spectroscopy, D Jadreško, D Guziejewski, **V Mirčeski** ChemElectroChem 5 (**2018**), 187-194

13. RECENT ADVANCES AND PROSPECTS OF SQUARE-WAVE VOLTAMMETRYV **Mirčeski**, L Stojanov, S Skrzypek, Contributions, Section of Natural, Mathematical and Biotechnical Sciences 39 (**2018**)

14. Step Potential as a Diagnostic Tool in Square-Wave Voltammetry of Quasi-reversible Electrochemical Processes, **V Mirceski**, L Stojanov, B Ogorevc, Electrochimica Acta, 134 (**2019**)

15. A. Chibisev, C Bozinovska, R. **Gulaboski,** Clinical evaluation and management of acute corrosive poisoning in adult patients - A ten year experience. Am. J. Emerg. Med. 36 (**2018**) 328-329

16. Electroanalysis of the Anthelmintic Drug Bithionol at Edge Plane Pyrolytic Graphite Electrode, M Brycht, K Konecka, K Sipa, S Skrzypek, **V Mirčeski**, Electroanalysis 31 (**2019**)

17. Electrochemistry of hydrogen peroxide reduction reaction on carbon paste electrodes modified by Ag-and Pt-supported carbon microspheres MS Randjelović, MZ Momčilović, D Enke, **V Mirčeski**, Journal of Solid State Electrochemistry 23 (**2019**), 1257-1267

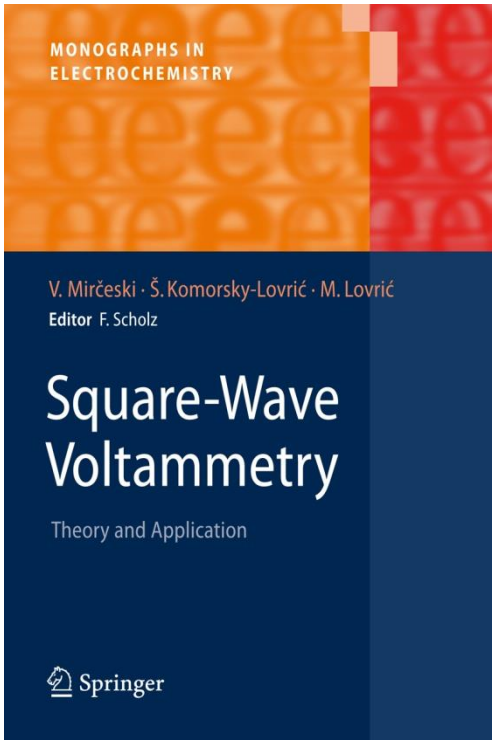
18. Correlation between composition, electrical and electrochemical properties of $LnCo_{1-x}Cr_xO_3$ (Ln = Pr, Gd and x = 0, 0.5 and 1) perovskites S Dimitrovska-Lazova, S Aleksovska, **V Mirceski**, M Pecovska-Gjorgjevich, Journal of Solid State Electrochemistry 23 (**2019**), 861-870

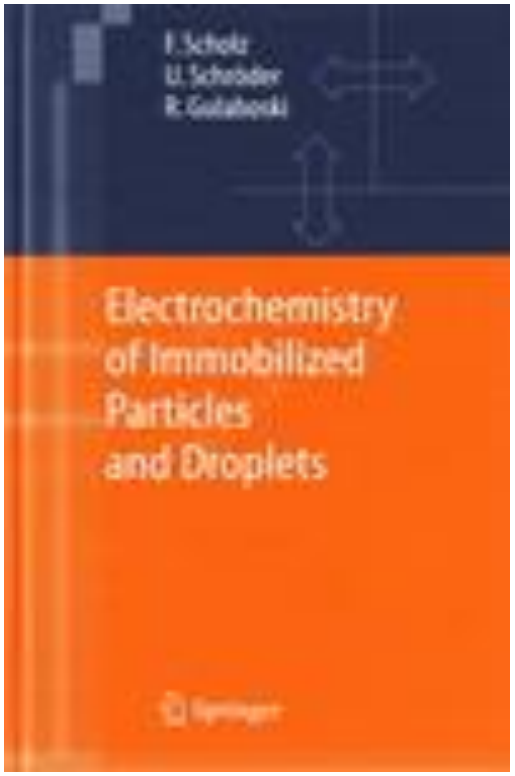
19. Non–enzymatic Amperometric Sensor for H2O2 Based on MnCO3 Thin Film Electrodes, S Stojkovikj, M Najdoski, B Sefer, **V Mirčeski**, Croatica Chemica Acta 91 (**2018**), 1-9

20. Square-wave voltammetry, **V Mirceski**, S Skrzypek, L Stojanov ChemTexts 4 (**2018**), 17

21. Bioactive compounds and “in vitro” antioxidant activity of some traditional and non-traditional cold-pressed edible oils from Macedonia, S. Veličkovska, AC Moţ, S Mitrev, R **Gulaboski**, L Brühl, H Mirhosseini, Journal of food science and technology 55 (**2018**) 1614-1623

22. V. Mirceski, D. Guzijewski, L. Stojanov, **R. Gulaboski**, Staircase square-wave voltammetry, Analytical Chemistry, ac-2019-03035u, (**2019**)

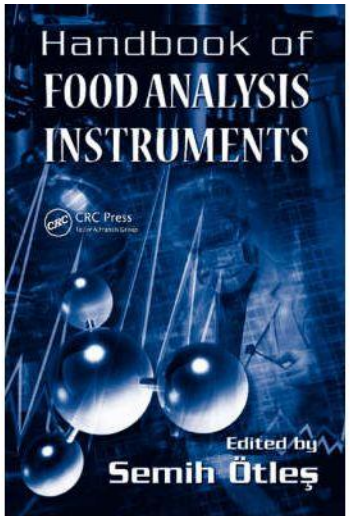




F. Scholz, U. Schroeder, **R. Gulaboski**

ELECTROCHEMICAL DICTIONARY (2012) **2015**
A. J. Bard, G. Inzelt, F. Scholz (editors)

R. Gulaboski, C. M. Pereira in
Handbook of Food Analysis Instruments (2008)
Semih Otles (Ed.)



Google Scholar

Add co-authors
We have co-authors suggestions.
ADD

prof. d-r Rubin Gulaboski (Dr.rer.nat)

FOLLOWING

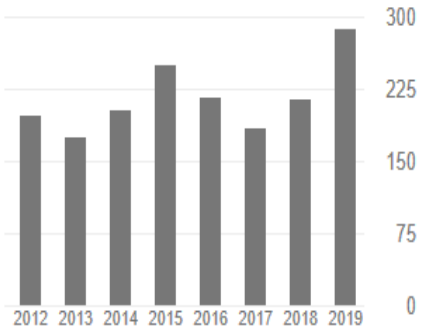
Professor of Physical Chemistry and Biochemistry, Goce Delcev University, Stip, MACEDONIA
Verified email at ugd.edu.mk - Homepage

Electrochemistry Square-wave Voltammetry Electroanalysis Coenzyme Q
Protein-film voltammetry

TITLE	CITED BY	YEAR
Electrochemistry of immobilized particles and droplets F Scholz, U Schröder, R Gulaboski Springer	321	2005
Determining the Gibbs Energy of Ion Transfer Across Water–Organic Liquid Interfaces with Three-Phase Electrodes F Scholz, R Gulaboski ChemPhysChem 6 (1), 16-28	118	2005
An electrochemical method for determination of the standard Gibbs energy of anion transfer between water and n-octanol	118	2002

Cited by VIEW ALL

	All	Since 2014
Citations	2903	1358
h-index	34	21
i10-index	55	42



Co-authors EDIT

Google Scholar

Valentin Mirceski

FOLLOW

Professor of chemistry, Institute of chemisry, Faculty of natural Sciences and mathematis, University "Ss Cyril and Methodius" S
Verified email at pmf.ukim.mk

Electroanalysis electrode kinetics modelling of electrode proc...

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	All	Since 2014
Citations	3119	1436
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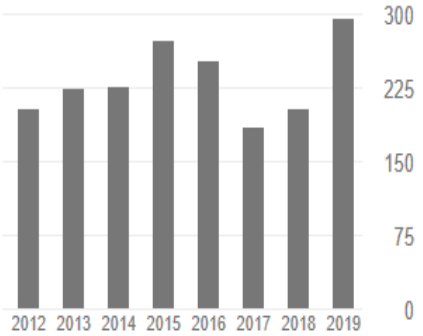
i10-index	77	43



TITLE	CITED BY	YEAR
Square-wave voltammetry: theory and application V Mirceski, S Komorsky-Lovric, M Lovric Springer Science & Business Media	319	2007
An electrochemical method for determination of the standard Gibbs energy of anion transfer between water and n-octanol R Gulaboski, V Mirčeski, F Scholz Electrochemistry communications 4 (4), 277-283	118	2002
Square-wave voltammetry: a review on the recent progress V Mirceski, R Gulaboski, M Lovric, I Bogeski, R Kappl, M Hoth Electroanalysis 25 (11), 2411-2422	102	2013
Standard partition coefficients of anionic drugs in the n-octanol/water system determined by voltammetry at three-phase electrodes G Bouchard, A Galland, PA Carrupt, R Gulaboski, V Mirčeski, F Scholz, ... Physical Chemistry Chemical Physics 5 (17), 3748-3751	93	2003
Split square-wave voltammograms of surface redox reactions V Mirčeski, M Lovrić	83	1997

F. Scholz-Germany
M. Hoth-Germany
R.Kappl-Germany
M. Bozem-Germany
I. Bogeski-Germany
K. Kumerow-Germany
S. Pasteka-Germany
B. Hoth-Germany
A. Kretzchman-Germany
Maurice L Her-France
Zbigniew Stojek-Poland
C. Pereira-Porto
N. Cordeiro-Porto
M. Chirea-Turkey
F. Borges-Portugal
E. Fereira-Portugal
E. Mazanes-Spain
R. Compton-UK
Tim Anders-USA
Darek …Poland

V. Mirceski-Macedonia
M. Lovric-Croatia
S. Lovric-Croatia
V. Maksimova-Macedonia
Cankov-Bulgaria
Catalin-Romania
Jihe Zhu-China
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Kostadinovic-Serbia
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Leon-MKD
Nikolina, Kate-MKD

OUR ADVISES to the young Students and Academic staff from MACEDONIA

-If you dream to make money from doing science…forget it

-be persistent, find a good supervisor, always ask for more…

-try to find collaborators from abroad, make student exchanges

-GERMANY is always first choice for supporting you

-create as more as possible friends and supporters

-if you find position abroad…do not forget to get back to MKD

-learn more instrumental techniques

-NEVER GIVE UP….

We will be always at your side to support you and to give you motivation, recommendations…

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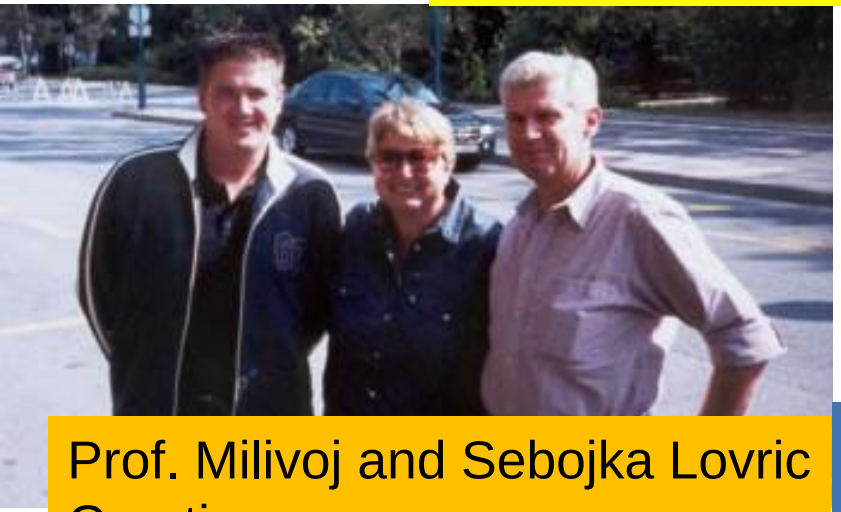

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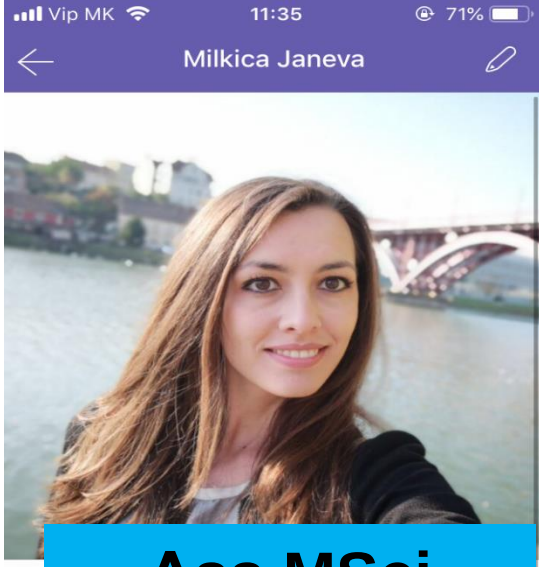

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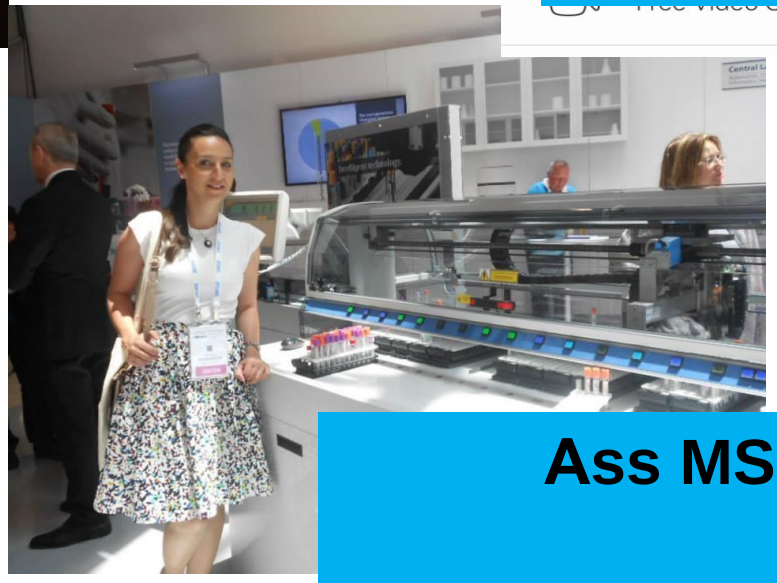

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- http://www.humboldt-foundation.de