

# András Kiss

## Curriculum vitæ

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👤 andras-kiss



### Current occupation

position Assistant lecturer (2015–)  
institution Department of General and Physical Chemistry  
University of Pécs  
7624, Pécs, Ifjúság útja 6.

### Education

1997–2003 **High school diploma**, Kisfaludy Károly Highschool, Mohács, Grade: 4.6/5 (*Excellent*).  
2003–2011 **Biologist MSc.**, University of Pécs, Pécs, Grade: 4.4/5 (*Good*).  
No: 132/2011  
2011–2014 **PhD Scholarship (Doctoral candidate)**, University of Pécs, Pécs.

### Master's thesis

title *Development and application of a carbon-dioxide microcell as SECM microtip. Estimation of carbon-dioxid output of yeast colonies by model calculations.*  
supervisor Dr. Géza Nagy DSc.  
defended 2011

### Doctoral dissertation

title *Recent Advances in Scanning Electrochemical Microscopy*  
supervisor Dr. Géza Nagy DSc.  
defended 2017

### Languages

Hungarian Mother tongue  
English Advanced C1 2016.02.16. BME Advanced language exam, certificate: no. 1309673  
German Threshold B1 2017.09.11. BME Basic language exam, certificate: no. 1915034

## Area of focus

Electrochemistry, microelectrodes, Scanning Electrochemical Microscopy, corrosion, numerical simulations.

## Teaching

- 2011- Physical Chemistry laboratory practice for pharmacy students (eng, hun)  
Problem solving seminar for pharmacy students (eng, hun)
- 2014- Physical Chemistry III. laboratory practice (hun)
- 2015- Applied Environmental Science, laboratory practice (hun)  
Microelectrodes, facultative laboratory practice (hun)  
Chemical Sensors, laboratory practice (hun)  
Mathematics of Physical Chemistry, seminar (hun)  
Introduction to Physico-Chemical Measurements, laboratory practice (hun)

## Computer skills

<i>Programming</i>	C, C++, Fortran, Java, Bash script	<i>Graphics</i>	Inkscape, CorelDRAW, Gnuplot, Gimp
<i>Word processing</i>	Microsoft products, L <sup>A</sup> T <sub>E</sub> X 2 <sub>ε</sub>	<i>Plotting</i>	Gnuplot, Tikz, Origin, Qtiplot
<i>SA</i>	Linux, Windows, BSD, UNIX	<i>Version control</i>	git, github

## Scholarships, internships and short visits

- 2005.08.01– **Summer internship**, *Balaton Limnological Research Institute*, Tihany.
- 2005.08.26 Effect of various salt concentration on freshwater algæ.
- 2006 **Internship**, *Department of Biophysics, University of Pécs*, Pécs.  
Investigation of the interaction of actin and titin.
- 2006 **Internship**, *Department of Ecology, University of Pécs*, Pécs.  
Study on the ecology of small mammals.
- 2006.07.31– **Summer internship**, *Balaton Limnological Research Institute*, Tihany.
- 2006.08.25 Effect of turbidity and depth on the picoalgæcomposition of lake Balaton.
- 2007–2009 **Internship**, *Department of Microbiology, University of Pécs*, Pécs.  
Studying the oxidative stress induction effect of patulin on *Schizosaccharomyces cerevisiae*  
Studying the carcinogenic and mutagenic effect of primycin, a new antibiotics; with DEL and Ames tests.
- 2009.07– **Research**, *Masaryk University*, Brno, Czech Republic.
- 2009.09 Developing a tyrosinase based polyphenol sensor.  
Investigation of adhesion of mammalian cells on the surface of quartz microbalances.
- 2010.08.01– **Research**, *Masaryk University*, Brno, Czech Republic.
- 2010.09.05 Development of a selective polyphenol sensor.

- 2009–2011 **Internship, main focus**, *Department of General and Physical Chemistry, University of Pécs, Pécs.*  
Development of a CO<sub>2</sub> microcell, SECM scanning, simulation of diffusion.
- 2012.05.17– **Research**, *University of La Laguna, Canary Islands, Spain.*
- 2012.06.16 Fabrication of a low resistance Mg<sup>2+</sup>-ion selective micropipette electrode for potentiometric Scanning Electrochemical Microscopy monitoring of microgalvanic corrosion processes.
- 2013.03.06– **Erasmus scholarship**, *Åbo Akademi, Turku, Finland.*
- 2013.06.26 Improving the lower detection limit of ion-selective microelectrodes.  
Development of a conductivity based airborne carbon nanotube sensor.
- 2013.09– **Apáczai Csere János Scholarship**, *University of Pécs, Pécs.*
- 2014.08 Investigation of corrosion processes with Scanning Electrochemical Microscope, TÉT-12-RO-1-2013-0018, TÁMOP-4.2.2.A-11/1/KONV-2012-0065
- 2015.10.22– **Short visit**, *Department of Analytical Chemistry, University of Regensburg,*  
2015.10.26 Regensburg, Germany.
- 2016.02.20– **Short visit**, *Department of Physical Chemistry, Ibn Zohr University, Agadir,*  
2016.02.28 Morocco.

## Publications

*Papers in reviewed journal: 12, Cumulative IF: 35.063*

*Citations: 88, h-index: 5*

1. **András Kiss**, László Kiss, Barna Kovács, Géza Nagy  
Air Gap Microcell for Scanning Electrochemical Microscopic Imaging of Carbon Dioxide Output. Model Calculation and Gas Phase SECM Measurements for Estimation of Carbon Dioxide Producing Activity of Microbial Sources  
*Electroanalysis* 23, no. 10 (2011): 2320-2326.  
IF.: 2.14, cited by: 3
2. Ricardo M. Souto, Javier Izquierdo, Juan José Santana, **András Kiss**, Livia Nagy, Géza Nagy  
Progress in scanning electrochemical microscopy by coupling potentiometric and amperometric measurement modes  
*Current Microscopy Contributions to Advances in Science and Technology, Formatex Research Center, Badajoz (2012): 1407-1415*  
cited by: 3
3. Livia Nagy, Gergely Gyetvai, **András Kiss**, Ricardo Souto, Javier Izquierdo, Géza Nagy  
Speciális célra szolgáló mikroelektrodok kifejlesztése és alkalmazása  
*Magyar Kémiai Folyóirat* 119, 2-3. (2013): 104-109.

4. Ricardo M. Souto, **András Kiss**, Javier Izquierdo, Livia Nagy, István Bitter, Géza Nagy  
Spatially-resolved imaging of concentration distributions on corroding magnesium-based materials exposed to aqueous environments by SECM  
*Electrochemistry Communications* 26 (2013): 25-28.  
IF.: 4.85, cited by: 31
5. **András Kiss**, Ricardo M. Souto, Géza Nagy  
Investigation of Mg/Al alloy sacrificial anode corrosion with Scanning Electrochemical Microscopy  
*Periodica Polytechnica Chemical Engineering* 57, no. 1-2 (2013): 11-14.  
IF.: 0.30, cited by: 5
6. Javier Izquierdo, **András Kiss**, Juan José Santana, Livia Nagy, István Bitter, Hugh S. Isaacs, Géza Nagy, Ricardo M. Souto  
Development of  $\text{Mg}^{2+}$  ion-selective microelectrodes for potentiometric scanning electrochemical microscopy monitoring of galvanic corrosion processes  
*Journal of The Electrochemical Society* 160, no. 9 (2013): C451-C459.  
IF.: 3.27, cited by: 23
7. **András Kiss**, Géza Nagy  
New SECM scanning algorithms for improved potentiometric imaging of circularly symmetric targets  
*Electrochimica Acta* 119 (2014): 169-174.  
IF.: 4.50, cited by: 8
8. Zsuzsanna Óri, **András Kiss**, Anton Alexandru Ciucu, Constantin Mihailciuc, Cristian Dragos Stefanescu, Livia Nagy, Géza Nagy  
Sensitivity enhancement of a „bananatrode” biosensor for dopamine based on SECM studies inside its reaction layer  
*Sensors and Actuators B: Chemical* 190 (2014): 149-156.  
IF.: 4.10, cited by: 4
9. **András Kiss**, Géza Nagy  
Deconvolution of potentiometric SECM images recorded with high scan rate  
*Electrochimica Acta* 163 (2015): 303-309.  
IF.: 4.50, cited by: 7
10. **András Kiss**, Géza Nagy  
Deconvolution in potentiometric SECM  
*Electroanalysis* 27, no. 3 (2015): 587-590.  
IF.: 2.14, cited by: 2

11. Javier Izquierdo, Bibiana M Fernández-Pérez, Dániel Filotás, Zsuzsanna Őri, **András Kiss**, Romen T Martín-Gómez, Livia Nagy, Géza Nagy, Ricardo M Souto  
Imaging of Concentration Distributions and Hydrogen Evolution on Corroding Magnesium Exposed to Aqueous Environments Using Scanning Electrochemical Microscopy  
*Electroanalysis* 28, (2016): 2354-2366.  
IF.: 2.471, cited by: 2
12. A. El Jaouhari, Dániel Filotás, **András Kiss**, M. Laabd, E. A. Bazzaoui, Livia Nagy, Géza Nagy, A. Albourine, J. I. Martins, R. Wang  
SECM investigation of electrochemically synthesized polypyrrole from aqueous medium  
*Journal of Applied Electrochemistry* 46 (2016): 1199-1209.  
IF.: 2.223
13. **András Kiss**, Dániel Filotás, Ricardo M Souto, Géza Nagy  
The effect of electric field on potentiometric Scanning Electrochemical Microscopic imaging  
*Electrochemistry Communications* 77 (2017): 138-141.  
IF.: 4.569
14. D Filotás, BM Fernández-Pérez, J Izquierdo, **A Kiss**, L Nagy, G Nagy, RM Souto  
Improved potentiometric SECM imaging of galvanic corrosion reactions  
*Corrosion Science* 129 (2017): 136-145  
IF.: 4.245

## Presentations and Posters

1. CO<sub>2</sub> Partial Pressure Imaging in Gas Phase with Scanning Electrochemical Microscopy (SECM), Poster, X. CECE Conference, Pécs, 2010.
2. Selective Amperometric Determination Of Pyrocatechol and Phenol in Wines with Flow-Injection Analysis, Poster, X. CECE Conference, Pécs, 2010.
3. Four-Channel Enzyme Biosensor for Determination of Phenols in Wine, Poster, X. CECE Conference, Pécs, 2010.
4. Development of a CO<sub>2</sub> microcell, and its application as measuring tip in Scanning Electrochemical Microscope. Scanning in gas phase over biological samples, Presentation, XXXIV. Szegedi Kémiai Előadói Napok, Szeged, 2011.
5. Investigation of Mg/Al alloy sacrificial anode corrosion with Scanning Electrochemical Microscopy, Poster, Chemical Engineering Workshop '12, Veszprém, 2012.
6. Investigation of galvanic corrosion of the Fe-Mg galvanic pair with Scanning Electrochemical Microscope, Poster, Chemical Sensors Workshop '12, Pécs, 2012.

7. Fabrication of a new, solid contact  $\text{Mg}^{2+}$  ion-selective electrode, and its application in Scanning Electrochemical Microscopic corrosion studies, Presentation, *1st Doctoral Workshop on Natural Sciences, Pécs, 2012*.
8. A new, solid contact  $\text{Mg}^{2+}$  ion-selective electrode as measuring tip for Scanning Electrochemical Microscope in corrosion studies, Presentation, *János Szentágothai Memorial Conference and Student Competition, Pécs, 2012 October 29-30*.
9. New insights in the corrosion mechanism of magnesium by SECM, Presentation, *7th Workshop on Scanning Electrochemical Microscopy (SECM) and Related Techniques, Ein Gedi, Israel, February 17-21, 2013*.
10. High-speed potentiometric SECM imaging of radially symmetric targets, Presentation, *ESEAC Malmö, Sweden, 11-14 June 2013*.
11. Deconvolution of potentiometric SECM images recorded with high scanrate, Poster, *Mátrafüred Conference 2014 June 13-16, Visegrád, Hungary*.
12. High-speed SECM imaging, Plenar presentation, *Analytica Conference 2016 May 10-13, München, Germany*.
13. The effect of electric field on potentiometric Scanning Electrochemical Microscopic imaging, Poster presentation, *Mátrafüred Conference 2017 11-16 June, Visegrád, Hungary*.
14. High-speed SECM imaging, Poster presentation, *9th Workshop on Scanning Electrochemical Microscopy and Related Techniques, 2017 13-17 August, Warsaw, Poland*.