

András Kiss

Curriculum vitæ

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Current occupation

position Assistant lecturer (2015–)
institution Department of General and Physical Chemistry
University of Pécs
7622, Pécs, Ifjúság útja 6.

Education

1997–2003 **High school diploma**, Kisfaludy Károly Highschool, Mohács, Grade: 4.6/5 (*Excellent*).
2003–2011 **Biologist**, University of Pécs, Pécs, Grade: 4.4/5 (*Good*).
2011–2014 **PhD (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

tentative title *Recent advances in Scanning Electrochemical Microscopy*
supervisor Dr. Géza Nagy DSc.
tb. defended 2016

Languages

Hungarian **Mother tongue**
English **Advanced C1** 2016.02.16. BME Advanced language exam, certificate: no. 1309673
German **Beginner**

Area of focus

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

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 ^A T _E X 2 _ε	<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 CO₂ 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 Mg²⁺-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

1. A. Kiss, L. Kiss, B. Kovács, G. 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* 2011, 23, No. 10, 2320 – 2326
2. R. M. Souto, A. Kiss, J. Izquierdo, L. Nagy, I. Bitter, G. Nagy, Spatially resolved imaging of concentration distributions on corroding magnesium-based materials exposed to aqueous environments by SECM, *Electrochemistry Communications*, Volume 26, January 2013, Pages 25-28
3. A. Kiss, R. M. Souto, G. Nagy, Investigation of Mg/Al alloy sacrificial anode corrosion with Scanning Electrochemical Microscopy, *Periodica Polytechnica Chemical Engineering*, 57/1–2 (2013) 11–14. doi: 10.3311/PPch.2164
4. A. Kiss, J. Izquierdo, J.J. Santana, L. Nagy, I. Bitter, G. Nagy, and R.M. Souto, Development of 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
5. A. Kiss, G. Nagy, New SECM scanning algorithms for improved potentiometric imaging of circularly symmetric targets, *Electrochimica Acta* 119, 169-174
6. Zs. Óri, A. Kiss, A. A. Ciucu, C. Mihailciuc, C. D. Stefanescu, L. Nagy, G. Nagy, Sensitivity enhancement of a „bananatrode” biosensor for dopamine based on SECM studies inside its reaction layer, *Sensors and Actuators B: Chemical* 190, 149-156
7. A. Kiss, G. Nagy, Deconvolution of potentiometric SECM images recorded with high scan rate, *Electrochimica Acta*, article in press, doi:10.1016/j.electacta.2015.02.096
8. A. Kiss, G. Nagy, Deconvolution in potentiometric SECM, *Electroanalysis Mátrafüred special issue*, article in press, DOI: 10.1002/elan.201400598
9. J. Izquierdo, B. M. Fernández-Pérez, D. Filotás, Zs. Óri, A. Kiss, R. T. Martín-Gómez, L. Nagy, G. Nagy, R. M. Souto, 2016. Imaging of Concentration Distributions and Hydrogen Evolution on Corroding Magnesium Exposed to Aqueous Environments Using Scanning Electrochemical Microscopy, *Electroanalysis*, 2016.

Presentations

1. CO_2 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 CO₂ 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 Mg²⁺ 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 Mg²⁺ 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 Konferencia 2014 Június 13-16, Visegrád, Hungary*.
12. High-speed SECM imaging, Plenary presentation, *Analytica Conference 2016 May 10-13, München, Germany*.