

CURRICULUM VITAE

ZOLTÁN KOVÁCS

ADDRESS

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EDUCATION

- 2004–2008 **PhD in Chemical Engineering**
Institute of Process Engineering, Johannes Kepler Universität Linz, Austria.
Thesis: 'Amino acid separation with nanofiltration: permeation modelling and batch system design'
PhD advisor: Prof. Wolfgang Samhaber
- 1996–2003 **Master's Degree on Food Engineering**
Specialized in Process Engineering. Result: very good.
University of Budapest, Hungary
- 1991–1996 Lajos Kossuth High school, Mosonmagyaróvár, Hungary.

EMPLOYMENT

- 2008–2011 Senior Scientist
Institute of Biopharmaceutical Technology, University of Applied Sciences Giessen–Friedberg, Giessen, Germany
- 2004–2008 Research Assistant
Institute of Process Engineering, Johannes Kepler Universität Linz, Austria
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RESEARCH PROJECTS AND TRAINEESHIPS

- 10/2002–05/2003 Research project “*Separation performance of nanofiltration membranes in methanol-water-sodium chloride ternary systems*”
Johannes Kepler University, Institute of Process Engineering, Linz, Austria. Supervisor: Prof. Wolfgang Samhaber
Scholarship obtained from the Hungarian Scholarship Board Office.
- 04–10/2002 Practical training, Process and Development, Heart of the Vineyard Winery, Michigan, US
- 2001 Semester study at the Munich Technical University, Germany in the frame of Socrates/Erasmus Exchange Programme.
- 10/2000–01/2001 Research project “*Bienzymatic Cross-Linked Enzyme Aggregates*”
Catholic University, School of Biotechnology in Porto, Portugal. Supervisor: Prof. Victor M. Balcao
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INDUSTRIAL PROJECTS

Collaboration with out-of-campus partners such as Nycomed, Borealis AMI, Evonik Degussa, Fresenius Kabi, DSM covered the fields of:

- Separation and purification of natural dyes from fruits and vegetables by combined processes of filtration, microfiltration, nanofiltration, reverse osmosis and evaporation. Lab-scale and pilot-scale operations.
- Separation of differently charged organic compounds with nanofiltration. Testing long-term performance of nanofiltration membranes under conditions of high pH and temperature.
- Enzyme recovery from fermentation broth. Diafiltration.
- Separation of amino acid derivate from inorganic salt with nanofiltration. IC sample analysis, separation performance modelling and simulation.
- Fractionalization of goat milk with ultrafiltration and nanofiltration. Protein separation.
- Acetic acid concentration with reverse osmosis.
- Reverse osmosis for organic acid recovery, HPLC sample analysis, membrane testing and partipation in the start-up of the industrial-scale plant.
- Computer simulation of industrial-scale microfiltration process for solvent removal and concentration of colloidal system.
- Simulation and optimization of industrial-scale ultrafiltration process for fractionazition of biological multi-component system.

TEACHING EXPERIENCE

- 2004 – Delivery of lectures and laboratory exercises on Chemical Unit Operations for undergraduate students
- 2004– Delivery of laboratory exercises at the annual Membrane Technology Course at the Institute of Process Engineering, Johannes Kepler University Linz, Austria
- 2006 Completed one-semester course on Didactic Methods
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AWARDS/DISTINCTIONS

- 09/2007 Young Researchers' Award of the European Membrane Society for best oral presentation at PERMEA 2007 Membrane Technology Conference, Siófok, Hungary
- 06/2003 University Award for Outstanding Graduate Student Performance at the Department of Food Engineering, University of Budapest, Hungary
- 03/2002 Communication and foreign studies in Temesvár, Romania (One-month scholarship awarded for excellent study performance received from EU)
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COMPUTER SKILLS

Programming: MATLAB, C. Statistical analysis: SPSS. Technical drawing: AutoCAD. Utilities: \LaTeX , LaTeX Beamer, MS Office. Web design: XHTML, CSS.

PROFESSIONAL MEMBERSHIPS

European Membrane Society

LANGUAGE SKILLS

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| Hungarian | native |
| English | fluent |
| German | fluent |

PUBLICATIONS

Scientific papers

Z. Kovács and W. Samhaber. Contribution of pH dependent osmotic pressure to amino acid transport through nanofiltration membranes. *Sep. Purif. Technol.*, 61 (2008) 243–248.

Z. Kovács and W. Samhaber. Characterization of nanofiltration membranes with uncharged solutes. *Membrantechnika*, 12 (2) (2008) 22–36

Z. Kovács, M. Discacciati, and W. Samhaber. Numerical simulation and optimization of multi-step batch membrane processes. *J. Mem. Sci.*, 324 (2008) 50–58.

Z. Kovács and W. Samhaber. Nanofiltration of concentrated amino acid solutions. *Desalination*, To appear, 2008.

Z. Kovács, M. Discacciati, and W. Samhaber. Modelling of multi-step microfiltration process for solvent removal. *Hung. J. Ind. Chem.*, Submitted, 2008.

Z. Kovács, M. Discacciati, and W. Samhaber. Modeling of amino acid nanofiltration by irreversible thermodynamics. Submitted, 2008.

Z. Kovács, M. Discacciati, and W. Samhaber. Modeling of batch and semi-batch membrane filtration processes. To Appear, 2008.

Conference presentations

Z. Kovács, M. Discacciati and W. Samhaber. Modelling of multi-stage membrane process for solvent exchange. Engineering with Membranes 2008. Proceedings pp. 77–80, Vale de Lobo, Portugal, 25–28 May 2008.

Z. Kovács and W. Samhaber. Numerical techniques for batch membrane system design. Conference on Chemical Engineering. Paper No. 230, Veszprém, Hungary, 22–24 April 2008.

Z. Kovács and W. Samhaber. Modelling and optimization of multi-stage batch processes. 10th World Filtration Congress Vol. II p. 241, Leipzig, Germany, 16–18 April 2008.

Z. Kovács and W. Samhaber. Nanofiltration of concentrated amino acid solutions. PERMEA 2007 Membrane Technology Conference, Siófok, Hungary, 2–6 Sept. 2007.

Z. Kovács and W. Samhaber. Effect of Concentration and Ionization State on Amino Acid Nanofiltration. ICAE 2006 Proceedings pp. 84, Frankfurt am Main, Germany, 15–19 May 2006.

REFERENCES

These persons are familiar with my professional qualifications and my character:

Prof. Dr. Wolfgang Samhaber

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Institute of Process Engineering
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Dr. Marco Discacciati

Research collaboration partner
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Linz, November 22, 2008