

Curriculum Vitae

Ing. Magdalena Bendová, Ph.D.

Born June 12, 1977

Education

- 2021–2023: Université de Tours, Habilitation à diriger des recherches, **HDR Degree** in Chemistry
2000–2003: University of Chemistry and Technology, Prague, Department of Physical Chemistry, **PhD. Degree** in Chemistry
1995–2000: University of Chemistry and Technology, Department of Physical Chemistry, **MSc. Degree** in Technical Physical and Analytical Chemistry

Employment

- 2023–present: **Assistant Professor**, Department of Physical Chemistry, Faculty of Chemical Engineering, University of Chemistry and Technology, Prague
2023–present: **Editor-in-Chief**, Journal of Solution Chemistry, Springer Verlag
2021–2023: **Chair of the PhD Studies Board**, Institute of Chemical Process Fundamentals of the CAS, v. v. i.
2017–2024: **Secretary of the Board of the Institute**, Institute of Chemical Process Fundamentals of the CAS, v. v. i.
2016–2022: **Team Leader at ICPF CAS**, Joint Laboratory for Energy Storage (Institute of Thermomechanics of the CAS, v. v. i. and Institute of Chemical Process Fundamentals of the CAS, v. v. i.)
2014–2022: **Associate Editor**, Journal of Solution Chemistry, Springer Verlag
2014–present: **Research Scientist and Team Leader**, research group Thermodynamics of Task-Specific Materials, Department of Aerosols Chemistry and Physics, Institute of Chemical Process Fundamentals of the CAS, v. v. i.
2013–2017: **Management Committee Member**, EU COST Action CM1206 *Exchange on Ionic Liquids - EXIL*
2013–2014: **Deputy Head of Department**, E. Hála Laboratory of Thermodynamics, Institute of Chemical Process Fundamentals of the CAS, v. v. i.
2010–2020: **Member of the PhD Studies Board**, Institute of Chemical Process Fundamentals of the CAS, v. v. i.
2003–2012: **Junior Research Scientist**, E. Hála Laboratory of Thermodynamics, Institute of Chemical Process Fundamentals of the CAS, v. v. i.

Languages

- English: full professional proficiency (C2 level), Cambridge Proficiency Certificate
French: full professional proficiency (C2 level)
Bulgarian: native or bilingual proficiency
Romanian: native or bilingual proficiency
German: professional working proficiency (B2 level)
Russian: elementary proficiency (A2 level)
Italian: elementary proficiency (A1 level)

Experience

Experimental determination of liquid phase behaviour of binary and multicomponent mixtures · Development of analytical methods (gas chromatography, UV-Vis spectrophotometry) · Measurement of heat capacity of pure compounds and excess heat capacity and enthalpy of liquid mixtures · Phase transitions in ionic liquids · COSMO-RS · Non-classical scaling-law description of liquid mixtures near to and at critical conditions

Research interests

- Phase behaviour (LLE, SLE, supercritical phase equilibria) and thermodynamic properties of pure compounds and multicomponent mixtures
- Room-temperature ionic liquids and other task-specific materials
- Solution chemistry and thermodynamics for sustainable development: thermal energy storage, green solvents
- Critical behaviour of liquid mixtures

Publications summary: Author of 54 original papers, 60+ contributions to scientific events, 4 research reports

Total number of citations 545, Number of citations without auto-citations 428, H-Index 14 (Source: WoS, 21 July 2023).

Invited Lectures at Conferences and Seminars

- 2022: Journées GDR LIPS, Bordeaux: lecture *Advanced data analysis of thermal property data of bis(1-hexadecyl-3-methylimidazolium) tetrachloronickelate ionic liquid*
- 2022: Université de Reims Champagne-Ardenne, Seminar of the French Chemical Society Champagne Ardenne: lecture *Assessing the application potential of ionic liquids in heat storage*
- 2015: Queen's University Belfast, School of Chemistry and Chemical Engineering seminar: lecture *Liquid phase behaviour and solution chemistry in systems of ionic liquids*
- 2015: Faculty of Nuclear Sciences and Physical Engineering of the CTU Prague, Seminar of the Department of Nuclear Chemistry: lecture *Solution chemistry in mixtures containing ionic liquids*
- 2014: 16th International Symposium on Solubility Phenomena: plenary lecture *Liquid Phase Behaviour in Systems Containing Ionic Liquids: Can 'Old-Fashioned' Experiments Enable Us to Understand Their Properties and Structure?*
- 2013: SETARAM Seminar on Heat Capacity 2013, Prague, Bendová, M., Wagner Z.: *Getting to grips with Cp measurements using DSC - experiment and critical evaluation of experimental data*

Significant recent projects and awards

- 2016–2019: Czech Science Foundation standard project 17-08218S *Thermal Energy Storage Materials: Thermophysical Characteristics for the Design of Thermal Batteries*
- 2014: IUPAC Analytical Division SSED Paolo Franzosini Award
- 2014–2017: MEYS COST project No. LD14090 *From task-specific solvents to energy storage. Thermodynamics of ionic liquids at the service of their applications.*

Memberships

- IUPAC Analytical Division Subcommittee for Solubility and Equilibrium Data
- Royal Society of Chemistry
- Czech Society of Chemical Engineering
- Board for Science Popularization CAS
- Czech Chemical Society
- Working Party on Fluid Separations, European Federation of Chemical Engineering
- Scientific and/or organization committee of conferences Distillation & Absorption (2010, 2014), International Symposium on Solubility Phenomena (2014, 2016), ECCE-6

Most recent publications

Bendová M, Heyda J, Wagner Z, Feder-Kubis J, Polák J, Tankam T, et al. Aqueous solutions of chiral ionic liquids based on (–)-menthol: An experimental and computational study of volumetric and transport properties. *J Mol Liq* 2023;378:121591.

Parmar N, Bendová M, Wagner Z, Jacquemin J. A study of changes in the heat capacity of carbon nanotube-based ionic liquids prepared from a series of imidazolium ionic liquids. *Phys Chem Chem*

Phys. 2022;24(36):22181–90.

Parmar N, Bendová M, Wagner Z, Pěnkavová V, Douihri I, Jacquemin J. Carbon Nanotube-Based Ionanofluids for Efficient Energy Storage: Thermophysical Properties' Determination and Advanced Data Analysis. *Ind Eng Chem Res.* 2021;60(20):7714–28.

Wagner Z, Bendová M, Rotrekl J, Sýkorová A, Čanji M, Parmar N. Density and sound velocity measurement by an Anton Paar DSA 5000 density meter: Precision and long-time stability. *J Mol Liq.* 2021;329:115547.

Rotrekl J, Jandová V, Storch J, Velíšek P, Cuřínová P, Schwarz J, et al. Thermal properties of novel oligoether-substituted ionic liquids and the influence of alkyl-substituent isomery. *Fluid Phase Equilib* 2020;514:112561.

Bendová M, Čanji M, Wagner Z, Bogdanov MG. Ionic Liquids as Thermal Energy Storage Materials: On the Importance of Reliable Data Analysis in Assessing Thermodynamic Data. *J Solut Chem* 2019;48(7):949–61.

Aldous, L., Bendova, M., Gonzalez-Miquel, M., Swadźba-Kwaśny, M., 2018. Highlights from the faraday discussion on ionic liquids: From fundamental properties to practical applications. *Chem. Comm.* 2017;54 (42), 5261-5267.

Zdolšek, N., Dimitrijević, A., Bendová, M., Krstić, J., Rocha, R. P., Figueiredo, J. L., Bajuk-Bogdanović, D., Trtić-Petrović, T., Šljukić, B., Electrocatalytic activity of Ionic-Liquid-derived porous carbon materials for the oxygen reduction reaction. *ChemElectroChem* 2018;5 (7), 1037-1046.

Wagner, Z., Bendová, M., Rotrekl, J., Velíšek, P., Storch, J., Uchytíl, P., Setnickova, K., Řezníčková, J., Advanced analysis of isobaric heat capacities by mathematical gnostics. *J. Solut. Chem.* 2017;46 (9-10), 1836-1853.

Andresová, A., Bendová, M., Schwarz, J., Wagner, Z., Feder-Kubis, J., Influence of the alkyl side chain length on the thermophysical properties of chiral ionic liquids with a (1 R,2 S,5 R)-(–)-menthol substituent and data analysis by means of mathematical gnostics. *J. Mol. Liq.* 2017;242, 336-348.