



## Dr. Gábor Csaba Papp – curriculum vitae

### Personal information:

name: Gábor Csaba Papp  
date of birth: 26. 02. 1976.  
place of birth: Debrecen, Hungary  
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### Studies, workplace:

01.09.2018. - Associate Professor at the Department of Physical Chemistry, UD  
01.01.2017. – 31.08.2017. Senior Research Fellow at the Department of Physical Chemistry, UD  
01.03.2016. – 31.12.2016. Senior Research Fellow at the MTA-DE Homogeneous Catalysis and Reaction Mechanisms Research Group  
01.01.2012. - 28.02.2016 - Research Fellow at the MTA-DE Homogeneous Catalysis and Reaction Mechanisms Research Group  
2010.03.01 - 2011.12.31. Research Fellow at the MTA-DE Homogeneous Catalysis Research Group  
01.07.1999. – 28.02.2010. Research Associate at the MTA-DE Homogeneous Catalysis Research Group  
26.11.2009. PhD degree at the University of Debrecen  
„Catalytically active Ru(II)-hydrides in aqueous solutions" Supervisor: Prof. Ferenc Joó  
1994 - 99. MSc in Chemistry, Lajos Kossuth University, Debrecen.  
„Monosulfonated triphenylphosphines and their complexes" Department of Physical Chemistry, Supervisor: Prof. Ferenc Joó

### Study trips, internship:

25.09.2010. – 05.10. Short term scientific mission in Dijon (France) at Institut de Chimie Moléculaire de l'Université de Bourgogne, Supervisor: Dr. Laurent Plasseraud  
15.03.2010. – 26.03. Short term scientific mission in Turin (Italy) at Dipartimento di Chimica I.F.M. - Università di Torino, Supervisor: Prof. Dr. Silvio Aime  
26.11.2004. – 05.12. Short term scientific mission in Lausanne (Switzerland) at EPFL Faculté des Sciences de Base Institut des sciences et Ingénierie Chimiques (ISIC), Supervisor: Dr. Gábor Laurency  
01.03.2002. – 03.15. Short term scientific mission in Lausanne (Switzerland) at EPFL Faculté des Sciences de Base Institut des sciences et Ingénierie Chimiques (ISIC), Supervisor: Dr. Gábor Laurency  
01.03.2000. – 15.03. Short term scientific mission in Lausanne (Switzerland) at EPFL Faculté des Sciences de Base Institut des sciences et Ingénierie Chimiques (ISIC), Supervisor: Dr. Gábor Laurency  
1998. Summer internship at the BIOGAL Pharmaceutical Factory, Supervisors: Dr. Vilmos Kéri, Attila Mező



## Decorations:

Publication Award of the University of Debrecen (co-author, 2016)

János Bolyai Research Scholarship of the Hungarian Academy of Sciences (2012-2015)

Publication Award of the University of Debrecen (first author, 2012)

Youth Prize of the Hungarian Academy of Sciences (2011)

Ferenc Deák Pre-Doctoral Scholarship of the Hungarian Ministry of Education and Culture (2008/2009)

## Professional experience:

One of our most important results in the field of aqueous organometallic catalysis is the reversible formate / bicarbonate cycle for hydrogen storage, which is in the focus of interest. (G. Papp, J. Csorba, G. Laurency, F. Joó *Angew. Chem. Int. Ed.* **2011**, *50(44)* 10433-10435). We have described for the first time a catalytic cycle in which both hydrogenation and dehydrogenation are carried out in a completely closed system with the same Ru-*mtp*ppms catalyst, in aqueous solutions without additives (independent citations: 74). We filed a patent application for our previous results with similar but much more active water-soluble Ir-NHC-phosphine complex catalyst in the same hydrogen storage system (Horváth H., Papp G., Joó F., Kathó Á. WO/2015/040440). Using the most active Ir-emim-*mtp*ppms-*mtp*pts complex, we have investigated in detail the HCOO<sup>-</sup>-decomposition/HCO<sub>3</sub><sup>-</sup>-hydrogenation processes involved in hydrogen storage, and aiming at practical implementation, we have proposed a so-called aqueous medium "hydrogen accumulator" which has also been published in top international journals (H. Horváth, G. Papp, R. Szabolcsi, Á. Kathó, F. Joó *ChemSusChem* **2015**, *8(18)* 3036-3038.; H. Horváth, G. Papp, H. Kovács, Á. Kathó, F. Joó *Int. J. Hydr. Energy* **2019**, *11*, 28527-28532)

A new application of water-soluble Ru, Rh and Ir complexes, which are also active in hydrogenation/hydrogen storage, is related to medical diagnostics. By carrying out these reactions with *para*-H<sub>2</sub>, the product molecules become magnetically labeled - via *Para*-Hydrogen Induced Polarisation - and thus have the potential for use as MRI contrast agents (G. Papp, H. Horváth, F. Joó. *ChemCatChem* **2019**, *11*, 3000-3003).

Since March 2019, I am the head of the Homogeneous Catalysis Research Group at the Department of Physical Chemistry (UD, Faculty of Science and Technology, Institute of Chemistry) which has been formed around the academic Prof. Ferenc Joó in the last decades. Furthermore, I lead the work of the Chemical Hydrogen Storage group within the Vehicle Industry research group, which was established in the framework of the Thematic Excellence Programme (ED\_18-1-2019-0028) of the Ministry of Innovation and Technology.

15.04.2021.