

Dr Petra Ágota Szilágyi

PhD, FRSC, FHEA, MSc, MA

School of Engineering and Materials Science
Queen Mary University of London
Mile End Road
London E1 4NS

tel: +44 (0)20 7882 7948
email: p.szilagyi@qmul.ac.uk web: www.sems.qmul.ac.uk/p.szilagyi

2022

The sustainable materials roadmap.

Titirici M, Baird SG, Sparks TD, Yang SM, Brandt-Talbot A, Hosseinaei O, Harper DP, Parker RM, Vignolini S, Berglund LA, Li Y, Gao H-L, Mao L-B, Yu S-H, Díez N, Ferrero GA, Sevilla M, Szilagyi PÁ, Stubbs CJ, Worch JC, Huang Y, Luscombe CK, Lee K-Y, Luo H, Platts MJ, Tiwari D, Kovalevskiy D, Fermin DJ, Au H and Alptekin H. *Journal of Physics Materials* vol. 5, (3).IOP Publishing.

Formation and growth characteristics of nanostructured carbon films on nascent Ag clusters during room-temperature electrochemical CO₂ reduction.

Watmanee S, Nganglumpoon R, Hongrutai N, Pinthong P, Praserthdam P, Wannapaiboon S, Szilagyi PA, Morikawa Y and Panpranot J. *Nanoscale Advances.Royal Society of Chemistry*.

2021

A facile and sustainable one-pot approach to the aqueous and low-temperature PET-to-Uio-66(Zr) upcycling.

Crespo-Ribadeneira M, King J, Titirici M and Szilagyi PA. *Chemical Communications.Royal Society of Chemistry (Rsc)*.

Biomass derived carbon materials: synthesis and application towards CO₂ and H₂S adsorption.

Szilagyi P, Nicolae SA and Titirici MM. *Nano Select.Wiley-Vch Verlag*.

Cyclodextrins: a new and effective class of co-modulators for aqueous zirconium-MOF syntheses.

Hoyez G, Rousseau J, Rousseau C, Saitzek S, King J, Szilagyi PÁ, Volkringer C, Loiseau T, Hapiot F, Monflier E and Ponchel A. *Crystengcomm.Royal Society of Chemistry*.

Effect of linker functionalisation on the catalytic properties of Cu nanoclusters embedded in MOFs in direct CO and CO₂ reduction by H₂.

Pompe CE and Szilagyi PA. *Faraday Discussions.Royal Society of Chemistry*.

Chapter 13: Catalytic Nanoparticles in Metal-Organic Frameworks.

King J and Szilagyi P. *Monographs in Supramolecular Chemistry* 396-427.

2020

Soft templating production of porous carbon adsorbents for CO₂ and H₂S capture.

Nicolae S, Szilagyi P and Titirici M-M. *Carbon.Elsevier*.

Carbon Dots in Solar-to-Hydrogen Conversion.

Luo H, Guo Q, Szilagyi PÁ, Jorge AB and Titirici MM. *Trends in Chemistry.Elsevier*.

Metal Hydrides and Related Materials - Energy Carriers for Novel Hydrogen and Electrochemical Storage.

El Kharbachi A, Dematteis E, Shinzato K, Stephenson S, Bannenberg L, Heere M, Zloeta C, Szilagyi P, Bonnet J-P, Grochala W, Ichikawa T, Baricco M and Hauback B. *The Journal of Physical Chemistry C: Energy Conversion and Storage, Optical and Electronic Devices, Interfaces, Nanomaterials, A.American Chemical Society*.

How to functionalise metal-organic frameworks to enable guest nanocluster embedment.

King J, Zhang L, doszczeczko S, Sambalova O, Luo H, Rohman F, Phillips O, Borgschulte A, Hirscher M, Addicoat MA and Szilagyi PA. *Journal of Materials Chemistry A*. Royal Society of Chemistry.

2019

Bridging the gap between Homogenous Heterogenous and ElectroCatalysis: Ironnitrogen molecular complexes within carbon materials for catalytic applications.

Titirici M-M, Li A, Nicolae SA, Qiao M, Preuss K, Szilgyi PÁ and Moores A. *Chemcatchem*. Wiley.

Interactions of hydrogen with Pd@MOF composites.

Malouche A, Zlotea C and SZILAGYI PA. *Chemphyschem*. Wiley.

Interrogation of the effect of polymorphism of a metal-organic framework host on the structure of embedded Pd guest nanoparticles.

Butson J, Kim H, Murugappan K, Saunders M, Buckley C, Debbie S and SZILAGYI PA. *Chemphyschem*. Wiley.

2018

An ambient-temperature aqueous synthesis of zirconium-based metal-organic frameworks.

Pakamore I, Jolanta R, Cyril R, Eric M and SZILAGYI PA. *Green Chemistry*. Royal Society of Chemistry.

Synthesis, thermal stability and unknown properties of Fe_{1x}Al_xVO₄ solid solution.

Tabero P, Frackowiak A, Filipek E, Dbrowska G, Homonnay Z and SZILAGYI PA. *Ceramics International*.

2017

Functionalised metal-organic frameworks: A novel approach to stabilising single metal atoms.

Szilgyi P, Rogers DM, Zaiser I, Callini E, Turner S, Borgschulte A, Zttel A, Geerlings H, Hirscher M and Dam B. *Journal of Materials Chemistry A* vol. 5, (30) 15559-15566.

2016

The impact of post-synthetic linker functionalization of MOFs on methane storage: The role of defects.

SZILAGYI PÁ, Serra-Crespo P, Gason J, Geerlings H and Dam B. *Frontiers in Energy Research* vol. 4, (MAR).

Controlling embedment and surface chemistry of nanoclusters in metal-organic frameworks.

Coupry DE, Butson J, Petkov PS, Saunders M, O'Donnell K, Kim H, Buckley C, Addicoat M, Heine T and Szilgyi P. *Chemical Communications* vol. 52, (29) 5175-5178.

2015

Stabilization of volatile Ti(BH₄)₃ by nano-confinement in a metalorganic framework.

Callini E, Szilgyi P, Paskevicius M, Stadie NP, Réhault J, Buckley CE, Borgschulte A and Zttel A. *Chemical Science* vol. 7, (1) 666-672.

Contaminant-resistant MOF-Pd composite for H₂ separation.

Szilgyi P, Westerwaal RJ, Lansink M, Van Montfort HI, Trzesniewski BJ, Garcia MV, Geerlings H and Dam B. *Rsc Advances* vol. 5, (108) 89323-89326.

2014

Probing hydrogen spillover in Pd@MIL-101(Cr) with a focus on hydrogen chemisorption.

Szilgyi PA, Callini E, Anastasopol A, Kwakernaak C, Sachdeva S, Van De Krol R, Geerlings H, Borgschulte A, Zttel A and Dam B. *Physical Chemistry Chemical Physics* vol. 16, (12) 5803-5809.

Interplay of linker functionalization and hydrogen adsorption in the metal-organic framework MIL-101.

Szilgyi PA, Weinrauch I, Oh H, Hirscher M, Juan-Alcañiz J, Serra-Crespo P, De Respinis M, Trzenniewski BJ, Kapteijn F, Geerlings H, Gascon J, Dam B, Grzech A and Van De Krol R. *Journal of Physical Chemistry C* vol. 118, (34) 19572-19579.

2013

Post-synthetic cation exchange in the robust metal-organic framework MIL-101(Cr).

Szilgyi PA, Serra-Crespo P, Dugulan I, Gascon J, Geerlings H and Dam B. *Crystengcomm* vol. 15, (47) 10175-10178.

Metal-organic framework thin films for protective coating of Pd-based optical hydrogen sensors.

Szilgyi PA, Westerwaal RJ, Van De Krol R, Geerlings H and Dam B. *Journal of Materials Chemistry C* vol. 1, (48) 8146-8155.

MOF@MOF core-shell vs. Janus particles and the effect of strain: Potential for guest sorption, separation and sequestration.

Szilgyi PA, Lutz M, Gascon J, Juan-Alcañiz J, Van Esch J, Kapteijn F, Geerlings H, Dam B and Van De Krol R. *Crystengcomm* vol. 15, (31) 6003-6008.

2012

Direct grafting of carbon nanotubes with ethylenediamine.

Gromov AV, Gray N, Szilgyi PA and Campbell EEB. *Journal of Materials Chemistry* vol. 22, (39) 21242-21248.

2009

Detailed spectroscopic, thermodynamic, and kinetic studies on the protolytic equilibria of FeIII cydta and the activation of hydrogen peroxide.

Brausam A, Maigut J, Meier R, Szilgyi PA, Buschmann HJ, Massa W, Homonnay Z and Van Eldik R. *Inorganic Chemistry* vol. 48, (16) 7864-7884.

Polymorphism and its effects on the magnetic behaviour of the [Fe(sal 2-trien)][Ni(dmit)2] spin-crossover complex.

Faulmann C, Szilgyi PA, Jacob K, Chahine J and Valade L. *New Journal of Chemistry* vol. 33, (6) 1268-1276.

2008

Thermal stability of the FeIIIEDTA complex in its monomeric form.

Szilgyi PA, Madarsz J, Kuzmann E, Vértes A, Molnr G, Bousseksou A, Sharma VK and Homonnay Z. *Thermochimica Acta* vol. 479, (1-2) 53-58.

Thermal and light-induced spin crossover phenomena in new 3D hofman n-like microporous metalorganic frameworks produced as bulk materials and nanopatterned thin films.

Agustí G, Cobo S, Gaspar AB, Molnr G, Moussa NO, Szilgyi PA, Plfi V, Vieu C, Carmen Muñoz M, Real JA and Bousseksou A. *Chemistry of Materials* vol. 20, (21) 6721-6732.

Temperature and pressure effects on the spin state of ferric ions in the [Fe(sal2-trien)][Ni(dmit)2] spin crossover complex.

Szilgyi PA, Dorbes S, Molnr G, Real JA, Homonnay Z, Faulmann C and Bousseksou A. *Journal of Physics and Chemistry of Solids* vol. 69, (11) 2681-2686.

2007

Mössbauer study of the autoxidation of ethylenediaminetetraacetato- ferrate(II).

Szilgyi PA, Homonnay Z, Szalay R, Sharma VK and Vértes A. *Structural Chemistry* vol. 18, (5) 717-722.

Corrosion study of heat exchanger tubes in pressurized water cooled nuclear reactors by conversion electron Mössbauer spectroscopy.

Homonnay Z, Szilgyi PA, Kuzmann E, Varga K, Németh Z, Szab A, Rad K, Schunk J, Tilky P and Patek G. *Journal of Radioanalytical and Nuclear Chemistry* vol. 273, (1) 85-90.

The investigations of phases with general formula M₂FeV₃O₁₁, where M=Mg, Co, Ni, Zn by IR and Mössbauer spectroscopy.

Tabero P, Blonska-Tabero A, Szilgyi PA and Homonnay Z. *Journal of Physics and Chemistry of Solids* vol. 68, (5-6) 1087-1090.

2006

Novel tert-butyl-tris(3-hydrocarbylpyrazol-1-yl)borate ligands: Synthesis, spectroscopic studies, and coordination chemistry.

Graziani O, Hamon P, Thépot JY, Toupet L, Szilgyi PA, Molnr G, Bousseksou A, Tilset M and Hamon JR. *Inorganic Chemistry* vol. 45, (14) 5661-5674.

Tetra- and decanuclear iron(II) complexes of thiocalixarene macrocycles: Synthesis, structure, Mössbauer spectroscopy and magnetic properties.

Desroches C, Pilet G, Szilgyi PA, Molnr G, Borshch SA, Bousseksou A, Parola S and Luneau D. *European Journal of Inorganic Chemistry* (2) 357-365.

2005

Mössbauer investigation of peroxy species in the iron(III)-EDTA-H₂O₂ system.

Sharma VK, Szilgyi PA, Homonnay Z, Kuzmann E and Vértes A. *European Journal of Inorganic Chemistry* (21) 4393-4400.

Mössbauer studies of iron(III)-(indole-3-alkanoic acids) systems in frozen aqueous solutions.

Kovcs K, Kamnev AA, Kuzmann E, Homonnay Z, Szilgyi PA, Sharma VK and Vértes A. *Journal of Radioanalytical and Nuclear Chemistry* vol. 266, (3) 513-517.