SOLID STATE CHEMISTRY 2018

PRELIMINARY PROGRAMME

SUNDAY, SEPTEMBER 16, 2018

15:00 - 19:00	**Registration**
19:00 - 19:40 **PT 01**	**Attractive new chemistry of aluminum and silicon** H. W. Roesky
20:00 - 22:00	**Welcome Drink**

MONDAY, SEPTEMBER 17, 2018

09:00 - 09:20	**Opening Session** Tomas Wagner
09:20 - 10:00 **PT 02**	**Shining a light on disease with mid-infrared fibreoptics (Lecture dedication to Prof. Miloslav Frumar)** A. B. Seddon, L. Sojka, T. M. Benson, D. Furniss, Z. Q. Tang, H. Parnell, D. Jayasuriya, Y. Fang[1], M. Shen, S. Sujecki
10:00 - 10:20	Coffee Break

SESSION I

10:20 - 10:50 **InvT 01**	**Dispersion management and several octaves supercontinuum generation in infrared crystals, bulk glasses or nonlinear optical fibres** F. Smektala, A. Lemière, P. Froidevaux, F. Désévédavy, B. Kibler, J.-C. Jules, P. Mathey, G. Gadret
10:50 - 11:20 **InvT 02**	**Especially pure chalcogenide glasses. Preparation, optical properties, applications** M.F. Churbanov, V.G. Plotnichenko, I.V. Scripachev, L.A. Ketkova, A. Velmuzhov
11:20 - 11:40	**Fused chalcogenide fiber couplers: modeling and fabrication** B. Stepanov, O. Benderov, T. Tebeneva, G. Snopatin, A. Ignatov, M. Spiridonov, I. Scripachev
11:40 - 12:00	**GeSbSe chalcogenide glass thermal properties and stability for fabrication of microstructured optical fibers** S. Wu, S. C. Fleming, B.T. Kuhlmey, J.G. Hayashi, H. Ebendorff-Heidepriem, A. Stefani
12:00 - 12:20	**Synthesis and applications of 1D inorganic nano- and microfibers** L. Hromádko, E. Koudelková, R. Bulánek, J.M. Macák
12:20 - 13:20	Lunch
13:20 - 13:40	**Electric field-induced softening (EFIS) of alkali silicate glasses** Ch. McLaren, W. Heffner, B. Roling, R. Raj, N. Smith, H. Jain
13:40 - 14:00	**Ion beam patterning in As-Se amorphous layers** S. Molnar, R. Bohdan, I.Rajta, Gy. Nagy, S. Kokenyesi
14:00 - 14:20	**Surface relief grating recording in amorphous chalcogenide and azobenzene compounds** J. Teteris
14:20 - 14:40	**Vacuum evaporated vs. spin coated chalcogenide glass thin films for diffractive optics fabrication** M. Vlcek, K. Palka, S. Slang, L.Loghina, A. Iakovleva, M. Grinco
14:40 - 15:00	**Highly transparent high-refractive index tellurite glass film via a non-hydrolytic sol-gel route** X. Z. Pan, J. B. Zhao, G. J. Qian, X. Z. Zhang, Y. L. Ruan, H. Ebendorff-Heidepriem
15:00 - 15:20	**Ultrafast laser-induced nanogratings in alkali silicate and germanate glasses** S.V. Lotarev, S.S. Fedotov, A.I. Kurina, A.S. Lipatiev, M.Yu. Presnyakov, V.N. Sigaev
15:20 - 15:40	**Peculiarities of direct surface patterning using As_2S_3: Mn nanomultilayer structure** O. Paiuk, A. Meshalkin, A. Stronski, E. Achimova, V. Abashkin, L. Revutska, A. Prisacar, G. Triduh, P. Oleksenko, A. Korchovyi
15:40 - 16:00	**Overview of applications with TESCAN FIB-SEMs in Mmaterial, semiconductors and life sciences** P. Klímek
16:00 - 16:20	**AFM/SEM integration and Correlative Probe and Electron Microscopy (CPEM™) – an innovative approach to correlative imaging** J. Neuman, Z. Nováček, M. Pavera

SESSION II

10:20 - 10:50 **InvT 03**	**Simulations and theory of conducting bridge computer memory materials** D. Drabold, K. Prasai, K Subedi

10:50 - 11:20 **InvT 04**	**Kinetics of silver photodiffusion into Ge chalcogenides: review of the neutron reflectivity measurement** Y. Sakaguchi, T. Hanashima, H. Aoki, H. Asaoka, M. Mitkova
11:20 - 11:40	**Resistive switching structures for memory and logic applications** K. Fröhlich, I. Kundrata, M. Blaho, M. Precner, M. Ťapajna, B. Hudec, I-T. Wang, W-L. Lai, C-C. Chang, T-H. Hou, M. Klimo, O. Šuch, O. Škvarek
11:40 - 12:00	**Resistive switching with chalcogenide thin film** B. Zhang, T. Wagner
12:00 - 12:20	**Printed RRAM and WORM memory structures** T. Syrový, J. Beránek, L. Syrová[1], M. Krbal, T. Wagner
12:20 - 13:20	Lunch
13:20 - 13:50 **InvT 05**	**Fast and slow ionic transport in chalcogenide glasses: structural description, spectroscopic and diffusion evidence** E. Bychkov
13:50 - 14:20 **InvT 06**	**Bonding character and ionic conductivity in solid electrolytes** M. Aniya
14:20 - 14:40	**Electrical impedance spectroscopy II - Principles and applications** P. Viscor
14:40 - 15:00	**How silver influences the structure and physical properties of chalcogenide glass $(GeS_2)_{50}(Sb_2S_3)_{50}$** M. Fraenkl, Z. Frumarova, V. Podzemna, S. Slang, M. Vlček, L. Beneš, T. Wagner
15:00 - 15:20	**Ionic transport and structural properties of the chalcogenide AgI-HgS-GeS2 glasses** R. Zaiter, M. Kassem, E. Bychkov
16:30 - 18:30	**POSTER SESSION I**

TUESDAY, SEPTEMBER 18, 2018

09:00 - 09:40 **PT 03**	**Van der Waals chalcogenide superlattices for advanced applications** A.V. Kolobov, P. Fons, Y. Saito, K. Mitrofanov, J. Tominaga
09:40 - 10:20	Coffee Break

SESSION I

10:20 - 10:50 **InvT 07**	**Beyond graphene – layered pnictogens and transition metal chalcogenides** Z. Sofer
10:50 - 11:20 **InvT 08**	**2-D transition metal dichalcogenides for energy conversion applications** S. N. Yannopoulos, A. Antonelou, G. Syrrokostas, G. Leftheriotis
11:20 - 11:40	**Giving function to covalently functionalized CVD graphene** M. Kalbac, P. Kovaricek, Z. Bastl, T. Verhagen, J Vejpravova
11:40 - 12:00	**2D materials and their interfaces: role of strain and charge** O. Frank
12:00 - 12:20	**Fluorographene chemistry: broadening the family and scope of graphene derivatives** A. Bakandritsos, D.D. Chronopoulos, P. Jakubec, R. Zbořil, M. Otyepka
12:20 - 13:20	Lunch
13:20 - 13:50 **InvT 11**	**Functionalization of nanostructured titania electrodes for Li-ion microbatteries** T. Djenizian
13:50 - 14:10	**Layered gadolinium hydroxides for simultaneous drug delivery and imaging** Y. Xu, A. Goyanes, Y. Wang, A.J. Weston, P.-W. So, C.F.G.C. Geraldes, A. M. Fogg, A. W. Basit, G. R. Williams
14:10 - 14:30	**Atomic layer deposition for modifications of high-aspect ratio nanostructures** J. Prikryl, R. Zazpe, M. Krbal, H. Sopha, J. M. Macak
14:30 - 14:50	**Bismuth based nanostructures – synthesis, characterization and application** H. Sopha, J. M. Macak
14:50 - 15:10	**Trimetallic oxide nanocomposites of transition metals Ti-V-(M) by sol-gel technique: Synthesis, characterization and electronic properties** R. Singh, A. Kumar, S.S. Gupta, P. Chaudhary

15:10 - 15:30	**Structure and properties of composite nanoparticles based on ZnO-CeO_2 system decorated by silver** O. Gorban, I. Danilenko, G. Volkova, S. Gorban, O. Viagin, I. Bryukhanova, T. Konstantinova, S. Lyubchik
15:30 - 15:50	**TiO_2 nanotube layers modified by chalcogenides** M. Krbal, H. Sopha, R. Zazpe, J. Prikryl, J. M. Macak
15:50 - 16:10	**In-situ crystallization of amorphous carbon on the surface of TiO_2 for better electrochemical performances via a combined mechanochemical - thermal route** M. Senna, N. Takezawa, H. Kobayashi, N. Suzuki
16:10 - 16:30	**Barium titanate nanoparticles for advanced composite dielectric layers applied in flexible field-effect transistors** F. Piana, B. Paruzel, J. Pfleger, R. Jambor, T. Řičica, J. M. Macák

SESSION II

10:20 - 10:50 **InvT 09**	**Design strategies for sulphide thermoelectrics** A.V. Powell, S. Long, S. Hull, P. Vaqueiro
10:50 - 11:20 **InvT 10**	**Frequency and time domain photoelectronic studies of a-Se** R.J. Curry, J. Jacobs, G. Belev, S. O. Kasap
11:20 - 11:40	**Extraordinary behavior of tetradymites doped with transition metals** P. Cermak, P. Ruleova, V. Holy, L. Benes, K. Palka, J. Prokleska, C. Drasar
11:40 - 12:00	**Single crystalline SnSe doped with As and its interaction with native defects** K. Sraitrova, V. Kucek, T. Plechacek, C. Drasar
12:00 - 12:20	**Wide bandgap photovoltaic chalcogenides: crystal and thin films materials** A. Thomere, C. Guillot-Deudon, N. Barreau, R. Bodeux, M. T. Caldes, A. Lafond

12:20 - 13:20 Lunch

13:20 - 13:40	**Reaction Flash Sintering a new paradigm in materials preparation** L.A. Pérez-Maqueda, E. Gil-González, A. Perejón, P.E. Sánchez-Jiménez, J.M. Criado, R. Raj
13:40 - 14:00	**Synthesis and characterization of alkaline earth – rare earth – borates $Me_3REE_2(BO_3)_4$** Ch. Otgonbayar, H. Pöllmann
14:00 - 14:20	**Preparation and photoluminescence properties of Ce^{3+}-doped and Ce^{3+}/Mn^{2+} co-doped $Y_3Al_5O_{12}$ phosphors obtained by controlled crystallization of glass microspheres in the system Y_2O_3-Al_2O_3 with eutectic composition** K. Haladejová, R. Klement, A. Prnová, J. Valúchová, D. Galusek
14:20 - 14:40	**In-depth study of CaF_2:Nd,Lu crystals for high-energy lasers** S. Normani, A. Braud, R. Soulard, J. L. Doualan, A. Benayad, V. Menard, G. Brasse, R. Moncorgé, D. Stoffel, J. P. Goossens, P. Camy
14:40 - 15:00	**Synthesis and characterization of chloroantimonite glasses in in the Sb_2O_3–$PbCl_2$–AgCl system** M. Legouera, P. Kostka, D. Yezli, B. Melik, F. Goumeidane, M. Iezid, R. Lakhdari, M. Poulain
15:00 - 15:20	**Effect of ageing on thermal stability of a low alkali sodium borate glass** P. Dabas, I. Coutinho, M. Vilarigues
15:20 - 15:40	**Evaluation of the levels of heavy metals, dissolved organic phosphorus (DOP) and nitrogen (DON) using principal component analysis in wetlands of Northern Nigeria** S. Yusuf
15:40 - 16:00	**Photovoltaic studies of nanostructured Silver Indium Diselenide blended with various organic semiconductors as hybrid solar cells** D. Pathak, T. Adhikari, T. Wagner, J.-M. Nunzi

16:30 - 18:30	**POSTER SESSION II**

WEDNESDAY, SEPTEMBER 19, 2018

09:00 - 09:40 **PT 04**	**Structure and bonding in phase-change memory materials** S. Elliott, T.H. Lee, K Konstantinou, F. Mocanu

09:40 - 10:20 Coffee Break

SESSION I

10:20 - 10:50 **InvT 12**	**Unravelling diffraction from glass, liquid, and amorphous materials** S. Kohara
10:50 - 11:20 **InvT 13**	**Rapid crystallization of phase change materials: Density functional simulations** J. Akola, J. Kalikka, M. Ropo,R.O. Jones

11:20 - 11:40	**Local and intermediate-range atomic orders in a Ga-Ge-Se glass by anomalous x-ray scattering** J. R. Stellhorn, S. Hosokawa, M. Krbal, T. Wagner, E. Magome
11:40 - 12:00	**Laser-induced modification and formation of periodic surface structures ("Ripples") of amorphous GST225 PCM materials** S. Kozyukhin, M. Presniakov, P. Lazarenko, M. Savelyev, M. Smayev, V. Glukhenkaya, A. Sherchenkov, A. Gerasimenko, V. Sigaev
12:00 - 12:20	**Design of low dimensional oxychalcogenides from heteroleptic building blocks** H. Kabbour, S. Nicoud, B. Leclercq, O. Mentré
12:20 - 13:20	Lunch
13:20 - 13:40	**Molecular modeling of the structure and dynamics of layered double hydroxides** T. L. P. Galvão, G. Pérez-Sánchez, A. Kuznetzova, C. S. Neves, J. Tedim, M. G. S. Ferreira, J. R. B. Gomes
13:40 - 14:00	**Theoretical analysis of properties of doping graphene with nitrogen and with boron** S.J. Grabowski
14:00 - 14:20	**Combined ab initio and experimental study of bismuth titanate pyrochlore doped by group II and III elements** A. G. Krasnov, I. R. Shein, I. V. Piir
14:20 - 14:40	**First-principles calculations of the electron structure and optical properties of Cu_7GeS_5I superionic crystal** D.I. Bletskan, V.V. Vakulchak, O.O. Yamkovy, I.P. Studenyak
14:40 - 15:00	**DFT modelling and experimental measurement of erbium positions in various crystal structures – $LiNbO_3$, diamond and ZnO** J. Cajzl, P. Nekvindová, B. Akhetova, A. Macková, P. Malinský, J. Oswald
15:00 - 15:40	Coffee Break
15:40 - 16:00	**Athermal effects in chalcogenide glasses** J. Orava, S. N. Yannopoulos, T. Wagner
16:00 - 16:20	**Application of quadrature frequency resolved spectroscopy on green upconversion photoluminescence in GeGaS:Er glasses** L. Strizik, V. Prokop, J. Hrabovsky, T. Wagner, T. Aoki
16:20 - 16:40	**Intense visible upconversion photoluminescence in GeGaS: Ho^{3+} glasses** V. Prokop, L. Strizik, H. Segawa, Y. Wada, J. Oswald, T. Wagner
16:40 - 17:00	**Advanced optical characterization of upconverting materials Na(Lu/Y/Gd)F_4: Yb, Er/Tm/Ho with optimized chemical composition** J. Valenta, M. Greben, A. Repko, D Nižňanský
17:00- 17:20	**Synthesis and thermodynamics of perovskite solid solutions as redox materials for solar-thermochemical processes** J. Vieten, M. Roeb, C. Sattler
17:20 - 17:40	**Synthesis, crystal structure and electrochemical properties of garnet-type lithium-ion conducting oxides** J. Akimoto, N. Hamao, K. Kataoka

SESSION II

10:20 - 10:50 **InvT 14**	**Crystallization of molecular glasses: A central role for surface diffusion** L. Yu
10:50 - 11:20 **InvT 15**	**High-temperature Raman spectroscopy** A.A. Osipov
11:20 - 11:40	**Thermodynamic properties and phase transitions of nonstoichiometric solids** D. Sedmidubský
11:40 - 12:00	**Recrystallization kinetics of Enzalutamide with regard to processing, storage and handling conditions** J. Romanová, R. Svoboda, I. Obadalová, T. Pekárek, L. Krejčík, A. Komersová
12:00 - 12:20	**Crystallization behavior of doped Ge-Te glasses** D. Brandová, R. Svoboda, J. Málek
12:20 - 13:20	Lunch
13:20 - 13:40	**Transient nucleation in Ge-Sb-S thin films** S. Martinkova, J. Shanelova, J. Bartak, J. Malek
13:40 - 14:00	**Comparison of crystal growth in chalcogenide bulk glasses and thin films** J. Barták, D. Valdés, J. Málek
14:00 - 14:20	**Viscous behavior of chalcogenides** P. Koštál, J. Barták, J. Málek
14:20 - 14:40	**Kinetics of nucleation and crystal growth in chalcogenide glasses** J. Shánělová, P. Honcová, J. Málek

14:40 - 15:00	**Stacking faults in calcium sulfate and their implications in gypsumbased plaster manufacture** F. Beaugnon, S. Quiligotti, E. Gouillart, G.Wallez
15:00 - 15:40	Coffee Break
15:40 - 16:00	**Mixed oxides of TiO_2-ZrO_2 as support of catalysts for organic synthesis** G. Rangel-Porras, A. Quiroga-Almaguer, C. Moncada-Sánchez, R. Zárraga-Nuñez, R. Miranda-Avilés
16:00 - 16:20	**The influence of acid treatment on properties of alkali activated zeolite foams** Z. Tišler, R. Bulánek
16:20 - 16:40	**Performance of cationic zeolites for adsorptive separation of olefin/paraffin gas mixtures** Y. Gherib, E. Koudelkova, F. S.de Oliveira Ramos, R.Bulanek
16:40 - 17:00	**Mg-Cu codoped bismuth niobates with the pyrochlore structure: cation distribution and electrical properties** M.S. Koroleva, I.V. Piir, N.A. Sekushin
17:00- 17:20	**M($BH_3NH_2BH_2NH_2BH_3$) – hydrogen-rich salts with pentameric boron-nitrogen chain anion** R. Owarzany, K. J. Fijalkowski, W. Grochala
17:20 - 17:40	**Metal borohydrides as precursors to metal boride ceramics** W. Wegner, T. Jaroń, W. Grochala
19:00 - 22:00	**Conference Dinner**

THURSDAY, SEPTEMBER 20, 2018

09:00 - 09:40 **PT 05**	**Chalcogenide glass fibers for infrared photonics** J.-L. Adam, V. Nazabal, J. Trolès
09:40 - 10:10	Coffee Break
	SESSION I
10:10 - 10:40 **InvT 16**	**Single crystal architecture in glass: Fabrication and unique characteristics** D. Savytskii, A. Stone, K. Veenhuizen, C. Au-Yeung, S. McAnany, D. Nolan, B. Aitken, V. Dierolf, H. Jain
10:40 - 11:10 **InvT 17**	**Chalcogenide glass-ceramics transparent in the infrared: multifaceted materials** L. Calvez
11:10 - 11:30	**Solid state mechanochemical synthesis of a series of early transition metal borohydrides** M. Winny, W. Wegner, W. Grochala
11:30 - 11:50	**Effect of surface modification on electrochemical properties of $Li_4Ti_5O_{12}$ synthesized via mechanochemical/thermal treatment** M. Fabián, M. Žukalová, L. Kavan, V. Šepelák, M. Senna
	SESSION II
10:10 - 10:30	**What can we benefit from oxidative reactions of carbazole** M. Li
10:30 - 10:50	**Structure and properties of AlCr7Fe6 alloy and its self-healing potential** A. Michalcová, I. Marek, Z. Veselka, A. Knaislová, Z. Sofer, T.F. Kubatík
10:50 - 11:10	**Study of thorium's role in room temperature superconductivity** D. Zhao
11:10 - 11:30	**The surface and electrical properties of oxide nanoparticles – humidity to electricity converter** I. Danilenko, O. Gorban, A. Shylo, O. Doroshkevych, T. Konstantinova, A. Lyubchyk
11:30 - 11:50	**New hydrogen-rich derivatives of ammonium borohydride, $NH_4[M(BH_4)_4]$, M = Y, Sc, Al** A. Starobrat, T. Jaroń, W. Grochala
12:10 - 20:30	**Excursion**

FRIDAY, SEPTEMBER 21, 2018

09:00 - 09:40 **PT 06**	**Strategies for developing strong, tough and stable hard materials, a case study on hard coatings** P.H. Mayrhofer
09:40 - 10:10	Coffee Break

SESSION I

10:10 - 10:40 **InvT 18**	**Magnetic frustration, ion conduction, and lithium intercalation battery materials from cation-ordering in perovskites** E.J. Cussen, M. Amores, H. El-Shinawi, S.A. Corr
10:40 - 11:10 **InvT 19**	**Complex hydrides as potential electrolytes for lithium-ion batteries** I. Cascallana-Matías, J. Breternitz, D. A. Keen, A. Baker, H. Davis, E. J. Cussen, D. H. Gregory
11:10 - 11:30	**The influence of anionic doping on transport properties of $Ba_2In_2O_5$ and $Ba_2CaNbO_{5.5}$** N. Tarasova, I. Animitsa
11:30 - 11:50	**Investigation of all-solid-state Na Ion Batteries based on chalcogenides** A. Castro, L. Calvez, O. Bošák, M. Kubliha, V. Labaš, D. Le Coq
11:50 - 12:10	**Structural and physical characterizations of new Mg-rich phases in the Nd-Ni-Mg system** E. Gaudin, E. Al Asmar, S. Tencé, J-L. Bobet

SESSION II

10:10 - 10:40 **InvT 20**	**Characteristics of amorphous In-Zn-Sn-O thin film transistors** A. D. Lestari, I. Noviyana, M. Putri, Y.-W, Heo, H.Y. Lee
10:40 - 11:10 **InvT 21**	**Point-defect engineering of thin film materials: insights from modelling** D. Holec, N. Koutná, F. Pacher, M. Friák, M. Šob, P.H. Mayrhofer
11:10 - 11:30	**Metatitanic acid pseudomorphs after titanyl sulfates** M. Motlochová, E. Pližingrová, M. Klementová, J. Kupčík, L. Palatinus, L. Szatmáry, J. Šubrt
11:30 - 11:50	**Phosphinic acid based metal-organic frameworks – a new route to hydrothermally stable porous coordination polymers** J. Hynek, P. Brázda, J. Rohlíček, J. Demel
11:50 - 12:10	**Influence of La+Ce oxide concentration on the solubility of Mo doped alkali borosilicate glasses for nuclear waste immobilization applications** D. Patil, M. Konale, J. McCloy

12:10 - 12:40	**Closing Ceremony** Tomas Wagner

12:40 - 13:40 Lunch