EMN Vienna & CC Beam Physics
June 18 to 22, 2017
ARCOTEL Wimberger Vienna Hotel, Vienna, Austria

June 18, Sunday **At the Hotel**	
14:00-17:30	Onsite Registration & Sign up

June 19, Monday **Room A**		
8:00-8:10	*Opening*	
Session: Quantum General I	**Chair: Miroslav Pozek**	
8:10-8:40	A01: Stimulated and Spontaneous Emission and the Laser Linewidth (Keynote)	**Markus Pollnau** University of Surrey, UK
8:40-9:05	A02: Topology-Driven Effects in Advanced Nanoarchitectures	**Vladimir Fomin** IFW Dresden, Germany
9:05-9:30	A03: Modelling of surface materials: Upwards from Quantum Chemistry	**Michael Probst** University of Innsbruck, Austria
9:30-9:55	A04: Quantum resistance standard device using epitaxial graphene on SiC	**Vladimir Falko** The University of Manchester, UK
9:55-10:20	A05: Laser Material Interactions for Flexible Applications	**Keon Jae Lee** Korea Advanced Institute of Science and Technology, Korea
10:20-10:35	*Session Break*	
Session: Quantum General II	**Chair: Vladimir Fomin**	

10:35-11:00	A06: Ferromagnetism in Carbon Based Materials Probed by NMR	**Miroslav Pozek** University of Zagreb, Croatia
11:00-11:25	A07: Quantum Mechanical and Molecular Mechanical Studies of Chemical Reactions	**Hajime Hirao** City University of Hong Kong, Hong Kong
11:25-11:50	A08: Effective Theory of Non-Adiabatic Quantum Evolution Based on the Quantum Geometric Tensor	**Dmitry Solnyshkov** University Clermont Auvergne /CNRS, France
11:50-12:15	A09: Information entropies calculation using the J-matrix method	**Ibraheem M.A. Nasser** King Fahd University of Petroleum & Minerals, Saudi Arabia
12:15-13:30	*Lunch Break*	
Session: Quantum General III	**Chair: Michael Probst**	
13:30-13:55	A10: Nanoscale Spin Filters from Graphene Nanostructures	**Frank Hagelberg** East Tennessee State University, USA
13:55-14:20	A11: New perspective on the 2D metal-Insulator Transition	**Michael Osofsky** U.S. Naval Research Laboratory, USA
14:20-14:45	A12: Electron Spin at Work in Modern and Emerging Devices	**Viktor Sverdlov** Technische Universität Wien, Austria
14:45-15:10	A13: End states of rectangular armchair graphene ribbon	**Eric Yang** Korea University, Korea
15:10-15:25	*Session Break*	
15:25-15:50	A14: Fabrication and Optimization of Silver Nanowire Transparent conductive film via needle organic precursor by sonochemical process	**Yamato Hayashi** Tohoku University, Japan

15:50-16:15	A15: Colloidal Quantum Dot Optoelectric Applications	**Kyung-Sang Cho** Samsung Advanced Institute of Technology, Korea
Session: Theoretical Aspects of Quantum Chair: Frank Hagelberg		
16:15-16:40	A16: Geometric Images of Quantum Mechanical Functions and Objects	**Alexander P. Yefremov** People's Friendship University of Russia, Russia
16:40-17:05	A17: Harmonic Analysis of Quantum States and Observables	**Artur Sowa** University of Saskatchewan, Canada
17:05-17:30	A18: Stieltjes electrostatic model of quantum mechanics	**K.V.S. Shiv Chaitanya** BITS Pilani, India
17:30-17:55	A19: Twin physics - the concept of complementarity in the real world	**Anna Backerra** Independent theoretical physicist, the Netherlands

June 20, Tuesday Room A		
Session: Quantum Engineering and Quantum Metrology		**Chair: Evgeny Yu. Perlin**
8:00-8:25	A20: Quantized electrical conductance of thin metal nanowire	**Yoshifumi Oshima** Japan Advanced Institute of Science and Technology, Japan
8:25-8:50	A21: Quantum wave mixing and resolving photonic classical and non-classical coherent states	**Vladimir Antonov** Royal Holloway, University of London, UK
8:50-9:15	A22: Single carrier transport in graphene nanostructure	**Takuya Iwasaki** Japan Advanced Institute of Science and Technology, Japan
Session: Quantum General IV		**Chair: Markus Pollnau**
9:15-9:40	A23: Novel Transient Nonlinear Optical Processes in Bulk Solids and Nanostructures	**Evgeny Yu. Perlin** ITMO University, St. Petersburg, Russia
9:40-10:05	A24: Spintronic applications of mono-axial chiral helimagnet	**Junichiro Kishine** The Open University of Japan, Japan
10:05-10:20	*Session Break*	
10:20-10:45	A25: Can Two-Way Direct Communication Protocols Be Considered Secure?	**Mladen Pavicic** Rudjer Boskovic Institute, Croatia
10:45-11:10	A26: Quantum Dynamics and Electronic Spectroscopy within the framework of Wavelets	**Mohamad Toutounji** United Arab Emirates University, UAE
11:10-11:35	A27: Quantum Vision in 3-D	**Yehuda Roth** Oranim Academic College, Israel

11:35-12:00	A28: Bosonization of open quasi-1D systems: Theory and applications	**Eugene Sukhorukov** University of Geneva, Switzerland
12:00-13:30	*Lunch Break*	
Session: Quantum General V		**Chair: Xiaozhong Zhang**
13:30-13:55	A29: How to make spin and lattice dynamical together?	**Jonas Fransson** Uppsala University, Sweden
13:55-14:20	A30: Effect of magnetic impurity on electronic spin levels in quantum ring	**Pinchas Dahan** Ruppin Academic Center, Israel
14:20-14:45	A31: Emissive ultra-small Au nanocluster for highly-efficient organic photovoltaics	**Dong Chan Lim** Korea Institute of Materials Science KIMS, Korea
14:45-15:10	A32: Geometrical contributions to the Exchange interactions: From Equilibrium to Nonequilibrium	**Frank Freimuth** Forschungszentrum Jülich, Germany
15:10-15:40	***Poster Session***	
Session: Electronic Structure and Dynamics		**Chair: Jonas Fransson**
15:40-16:05	A33: Semiconductor Based Magnetoresistance and Magnetic Logic	**Xiaozhong Zhang** Tsinghua University, China
16:05-16:30	A34: Electrical Transport Properties of Two-dimensional Electrons in InGaAsN/GaAsSb Type II Quantum Well	**Shuichi Kawamata** Osaka Prefecture University, Japan
16:30-16:55	A35: Density functional theory calculation for interface electronic structure of SiC power electronic devices	**Tomoya Ono** University of Tsukuba, Japan

16:55-17:20	A36: Dynamical mechanisms of biological macromolecular systems investigated by ab initio electronic structure calculations coupled to molecular dynamics	**Jiyoung Kang** University of Hyogo, Japan
17:20-17:45	A37: Experimental determination of the electronic structure of $CH_3NH_3PbI_3$ hybrid organic-inorganic perovskite	**Antonio Tejeda** CNRS, Université Paris Sud, France

June 20, Tuesday Room B		
Session: Soft Magnetic Materials		**Chair: Nikolai A. Usov**
8:00-8:25	B01: A novel exchange spring magnet with an insulating nano-sized soft magnetic oxide exchange-coupled with micron-sized hard magnetic nitride	**Nobuyoshi Imaoka** National Institute of Advanced Industrial Science and Technology, Japan
8:25-8:50	B02: Tuning hysteresis in metamagnetic shape memory alloys for refrigeration applications	**Daniel Salazar** BCMaterials, Spain
8:50-9:15	B03: Abnormal growth of Goss grains in grain oriented silicon steel driven by distribution characteristics of VC nano-particles	**Ivan Petryshynets** The Institute of Materials Research, Slovak Academy of Sciences, Slovakia
9:15-9:40	B04: High frequency magnetoimpedance and magnetoelastic resonance in magnetic microwires for biological and tagging applications	**Pilar Mar ń** Complutense University of Madrid, Spain
9:40-10:05	B05: The behaviour of soft magnetic composite cores for Electrical Machines both in standard environmental conditions and in cryogenics	**Fabrizio Marignetti** University of Cassino and South Lazio, Italy
10:05-10:20	*Session Break*	
Session: Quantum Computation with Nanostructures and Dopants I		**Chair: Keith Runge**
10:20-10:45	B06: Single dopants as stepping stones for inter-band tunneling in silicon tunnel diodes	**Manoharan Muruganathan** Japan Advanced Institute of Science and Technology, Japan
10:45-11:10	B07: Multi-scaled Simulations on Molecular-based Flash Memory	**Vihar Georgiev** University of Glasgow, UK

11:10-11:35	B08: Quantum tunneling microscope of an atomic scale device in silicon	**Benoit Voisin** The University of New South Wales, Australia
11:35-12:00	B09: Heavy-hole states in Ge hut wires	**Hannes Watzinger** Institute of Science and Technology Austria, Austria
12:00-13:30	*Lunch Break*	
Session: Soft Materials General Chair: Nobuyoshi Imaoka		
13:30-13:55	B10: Highly robust and low frictional double network ion gels	**Takaya Sato** National Institute of Technology, Japan
13:55-14:20	B11: Recent advances in unusual optical coatings for flexible optoelectronic device applications	**Young Min Song** Gwangju Institute of Science and Technology, Korea
14:20-14:45	B12: Characterization of Wavelength Effect on Photovoltaic Property of poly-Si Solar Cell by Using Photoconductive Atomic Force Microscopy(PC-AFM)	**Jinhee Heo** Korea Institute of Materials Science, Korea
14:45-15:10	B13: Organoclay nanocomposites for sustainable management of toxic waste compounds	**Esperanza Pavón** Instituto de Ciencia de Materiales de Sevilla, Spain
15:10-15:40	***Poster Session***	
Session: Quantum General VI Chair: Mladen Pavicic		
15:40-16:05	B14: Quantum Analogue Computing with Phi-Bits	**Keith Runge** University of Arizona, USA
16:05-16:30	B15: Quantum Computation: From Laboratory Demonstrations to state-of-the-art Algorithms for Quantum image Processing	**Abdullah M. Iliyasu** Prince Sattam Bin Abdulaziz University, Saudi Arabia Tokyo Institute of Technology, Japan

16:30-16:55	B16: The foundation of Biothermology from the point of view of nano/microscale thermophysical properties of biopolymerss	**Noriko Hiroi** Keio University, Japan
16:55-17:20	B17: Dynamics of quantum mechanical systems in the area of quark physics	**Shashank Bhatnagar** Chandigarh University, India

June 21, Wednesday Room A		
Session: Quantum Computation with Nanostructures and Dopants II Chair: Manoharan Muruganathan		
8:00-8:25	A38: Hybrid Quantum Systems: Spin qubits coupled to electromagnetic fields	**Guido Burkard** University of Konstanz, Germany
8:25-8:50	A39: Electronic structure of zigzag nanoribbons in an uniform magnetic field	**Jan Smotlacha** Bogoliubov Laboratory of Theoretical Physics, Russia
Session: Many Body Quantum Theory & Quantum General VII Chair: Vlasta Bonacic-Koutecky		
8:50-9:20	A40: The ladder physics in the Spin Fermion model (Keynote)	**Alexei Tsvelik** Brookhaven National Laboratory, USA
9:20-9:45	A41: Strange metal state near a heavy-fermion quantum critical point	**Chung-Hou Chung** National Chiao Tung University, Taiwan
9:45-10:00	*Session Break*	
10:00-10:25	A42: An effective potential theory for time-dependent multi-configuration wave function	**Tsuyoshi Kato** The University of Tokyo, Japan
10:25-10:50	A43: Typical and untypical states for non-equilibrium quantum dynamics	**Robin Steinigeweg** University Osnabrück, Germany
10:50-11:15	A44: Dynamics of a Mobile Impurity in a One-Dimensional Bose Liquid	**Aleksandra Petkovic** Université de Toulouse, CNRS, France

11:15-11:40	A45: The upper security bound for subcarrier wave quantum key distribution	**Anton Kozubov** ITMO University, St. Petersburg, Russia
11:40-13:40	*Lunch Break*	
Session: Theory, Modelling, and Simulation Chair: Fabrizio Marignetti		
13:40-14:05	A46: New insights from mesoscopic simulations of electrolyte transport under confinement	**Vincent Dahirel** UMR 8234 CNRS / UPMC Univ Paris 6, France
14:05-14:30	A47: Magnetization Reversal Process in Thin Amorphous Ferromagnetic Film with Surface Anisotropy	**Nikolai A. Usov** National University of Science and Technology MISiS, Russia
14:30-14:55	A48: Granular Matter in Extraterrestrial Environments – Modeling and Simulation of Regolith in Planetary Exploration	**Roy Lichtenheldt** German Aerospace Center DLR, Germany
14:55-15:10	*Session Break*	
Session: Beam Physics Chair: Mohamad Toutounji		
15:10-15:35	A49: Experimental and modelling studies of interaction of e- beam (10-345 MeV) with materials designed for radiation shielding for the MCP detector on JUICE mission to Jupiter	**Marek Tulej** Physics Institute, University Bern, Switzerland
15:35-16:00	A50: Emittance Reduction by increasing the ion source extraction field: comparing data with simulations	**Martin P. Stockli** Oak Ridge National Laboratory, USA
Session: Quantum General VIII Chair: Mohamad Toutounji		
16:00-16:25	A51: Tuning optical and catalytical properties of ligated metallic nanoclusters for bio-imaging application and hydrogen storage	**Vlasta Bonacic-Koutecky** Humboldt Universitat zu Berlin, Germany

16:25-16:50	A52: Nonlinear Plasmonics and Extremely Accurate Sensing	**Sergey Ponomarenko** Dalhousie University, Canada
16:50-17:15	A53: To be presented	**Hardy Schloer** Schloer Consulting Group, Germany

June 20, Tuesday Afternoon 15:10-15:40	
Poster Session	
P01: Construction of diabatic states and evaluation of non-adiabatic coupling terms by using adiabatic potential energies only	**Kyoung Koo Baeck** Gangneung-Wonju National University, Korea
P02: Microstructural Evolution of Electroless Ni deposited Electrospun Hollow Metal Nanotube for Electrolytic Cell SOEC and Bio-Sensing Applications	**Sung Gyu Pyo** Chung-Ang University, Korea
P03: Theoretical identification of frontier orbitals that are possibly responsible for electron transfer in hydrogenases with oxygen-tolerance	**Jaehyun Kim** University of Hyogo, Japan

June 22, Thursday *(We will poster details at the spot)*
One-Day Excursion: Nature, Culture, and Collaboration