December 17 (Wed)

Session 1 - Nucleation, Self-Assembly, and Phase Separation	
Chair: Peng Chen	
08:00 ~ 08:25	Hagan Bayley (Univ. of Oxford) Soft functional synthetic tissues and their properties
08:25 ~ 08:50	Joan Shea (UC Santa Barbara) Multiscale simulations of peptide liquid-liquid phase separation
08:50 ~ 09:15	Yongwon Jung (KAIST) Protein Models to Study Dynamics of Biomolecular Liquid-Liquid Phase Separation
09:15 ~ 09:25	Coffee Break
Chair: Joan Shea	
09:25 ~ 09:50	John Straub (Boston Univ.) Exploring the impact of sequence and cellular conditions on amyloid formation and polymorphism
09:50 ~ 10:15	Mi Hee Lim (KAIST) Chemical Strategies to Study Multiple Facets in Alzheimer's Disease
10:15 ~ 10:40	Jaeyoung Sung (Chung-Ang Univ.) Chemical Dynamics, Statistical Thermodynamics, and Transport Theories for Complex Materials and Biological Systems
10:40 ~ 10:50	Coffee Break
Chair: Hagan Bayley	
10:50 ~ 11:15	Joo-Yeon Yoo (POSTECH) Dynamics of Biomolecular Condensates on the ER membrane
11:15 ~ 11:40	Jeong-Mo Choi (Pusan National Univ.) Negative Autoregulation in Biomolecular Condensates
11:40 ~ 12:00	Koichi Kobayashi (Tohoku Daigaku) Quantitative analysis of intracellular nucleation of protein crystals

December 17 (Wed)

Session 2 - Dynamics in Living Cells	
Chair: Jaeyoung Sung	
14:00 ~ 14:25	Nam Ki Lee (Seoul National Univ.) Investigation of transcription-translation coupling and quantitative protein-protein interactions in living bacterial cells
14:25 ~ 14:50	Hye Yoon Park (Univ. of Minnesota) Single-molecule imaging of gene expression dynamics in the living brain
14:50 ~ 15:15	Jianshu Cao (MIT) Non-equilibrium Conformational Fluctuations in Driven Chemical Networks
15:15 ~ 15:25	Coffee Break
Chair: Younjoon Jung	
15:25 ~ 15:50	Hongbin Li (U. Brit. Columb) Two-molecule force spectroscopy captures intermolecular misfolding in parallelly organized titin
15:50 ~ 16:15	Ji-Hyun Kim (Chung-Ang Univ.) Age-dependent protein degradation modulates noise of self-regulated gene expression
16:15 ~ 16:40	Tai-Yen Chen (Univ. of Houston) Human transporter de-oligomerization regulates copper uptake into cells
16:40 ~ 16:50	Coffee Break
Chair: Hye Yoon Park	
16:50 ~ 17:15	Guangzhao Mao (Univ. of Edinburgh) Real-time visualization of axonal transport dynamics of protein-gold nanoparticle conjugates in living neurons
17:15 ~ 17:40	I-Ren Lee (National Taiwan Normal Univ.) Slippage Dynamics of Trinucleotide Repeat Hairpins Associated with Neurodegenerative Diseases
17:40 ~ 18:00	Jaroslava Miksovska (Florida International Univ.) Neuronal calcium sensors: target proteins for doxorubicin and paclitaxel and their potential role in neuropathy

December 18 (Thurs)

Session 3 - Materials Science	
Chair: John Straub	
08:00 ~ 08:25	Rigoberto Hernandez (Johns Hopkins Univ.) Dynamical Consistency, Indistinguishability and Data Harvesting in Multi-Scale Material Modeling
08:25 ~ 08:50	Joonkyung Jang (Pusan National Univ.) Molecular Dynamics and Thermodynamics of the Wet Adhesions of Mussel Foot Proteins
08:50 ~ 09:15	Seokmin Shin (Seoul National Univ.) Understanding two faces of self-assembly: amyloid formation & bionanostructure design
09:15 ~ 09:25	Coffee Break
Chair: Rigoberto Hernandez	
09:25 ~ 09:50	Seong-Ju Hwang (Yonsei Univ.) Versatile exsolution routes to energy-functional hybrid materials
09:50 ~ 10:15	Sungho Yoon (Chung-Ang Univ.) Heterogeneous Catalysts Derived from Ru-MACHO Complexes for Highly Efficient CO2 Hydrogenation to Formate
10:15 ~ 10:40	YounJoon Jung (Seoul National Univ.) Dynamical Phase Transitions and Charge Transport in Disordered Systems
10:40 ~ 10:50	Coffee Break
Chair: Seong-Ju Hwang	
10:50 ~ 11:15	Cho, Hae Sung (Chung-Ang Univ.) Understanding adsorption of porous crystals
11:15 ~ 11:40	Flanders, Nathan (Univ. of Chicago) Super-Absorption in Silicon Nanocrystals via Ultrafast Anisotropic Disordering

December 18 (Thurs)

Session 4 - Quantum, AI, and Biomolecular Engineering	
Chair: Seogjoo Jang	
13:00 ~ 13:25	Alexandre Tkatchenko (Univ. du Luxembourg) Fluctuating interatomic forces in molecules: Mean decays, but the variance increases with interatomic distance
13:25 ~ 13:50	Seunghoon Lee (Seoul National Univ.) Simulating Photochemical Reactions in Artificial Metalloenzymes
13:50 ~ 14:15	Sunmin Ryu (POSTECH) Molecular Excitons in Two-Dimensional Organic Crystals
14:15 ~ 14:25	Coffee Break
Chair: Ji-Hyun Kim	
14:25 ~ 14:50	Seogjoo Jang (City Univ. of New York - Queens College) Kinetic theory of olfaction and beyond
14:50 ~ 15:15	Philip Kim (Univ. of Toronto) Machine Learning methods for protein and peptide design
15:15 ~ 15:40	Yuqing Qiu (Univ. of Tennessee Knoxville) Thermodynamic Control of Organization and Flow in Cytoskeletal Networks Far Away from Equilibrium: Bridging Simulations and Theory through Machine Learning
15:40 ~ 15:50	Coffee Break
Chair: Philip Kim	
15:50 ~ 16:15	Sang-Hee Shim (Korea Univ.) Independently tunable, resonance stimulated Raman scattering for fluorescence-free single-molecule microscopy
16:15 ~ 16:40	Hye Ran Koh (Chung-Ang Univ.) Single-molecule insights into CRISPR-mediated nucleic acid targeting
16:40 ~ 17:00	Jiayi Huang (Westlake Univ.) Transport Kinetics of Triphenylmethane Dye Molecules at Artificial Liposome Membrane Interfaces by Optical Second Harmonic Generation Scattering