

UK – Korea research conference

29-30 May 2019

The Royal Society – Institute for Basic Science – The Korean Academy of Science and Technology bilateral international meeting

Wednesday 29 May 2019			
08.30	Registration		
09.15	Welcome and Introduction by hosts (Wolfson 1)		
09.45	Coffee (room change)		
Materials science (Wolfson 2)		Neuroscience	
Session 1: Materials for energy		Session 1: Synapse and glia development	
10.00	Bill David Introduction	10.00 Changjoon Justin Lee MAOBists join BAPTists and TAUists in Alzheimer research	
10.05	Peter B Littlewood Materials for energy and sustainability		
10.25	Josh Makepeace <i>In-situ</i> structural analysis of hydrogen storage materials and ammonia decomposition catalysts	10.25	Oscar Marín Differential control of excitatory and inhibitory synapse development by neuregulins
10.50	Discussion	10.50	Discussion
11.00	Bill David Energy materials and the bulk movement of charge	11.00	Jinhyun Kim mGRASP for high-resolution structural and functional synapse mapping at multiple scales
11.25	Jan-Willem Bos Development of thermoelectric materials for waste heat recovery	11.25	Ragnhildur Thóra Káradóttir Oligodendrocyte precursor cell-states and activity-dependent (re)myelination
11.50	Discussion	11.50	Discussion
12.00	LUNCH		
Session 2: Advanced characterisation and computation		Session 2: Synapse diversity and computation	
13.00	Hyunjung Kim Ultrafast and nanoscale structure and dynamics	13.00	Hee-Sup Shin Neural circuits underlying the 'Eye Movement Desensitization and Reprocessing', a psychotherapeutic regimen for fear disorders

13.25	Andrew M Beale Chemical imaging of functional materials under process conditions	13.25	Seth GN Grant Synapse diversity and the synaptome architecture of the brain
13.50	Discussion	13.50	Discussion
14.00	Aron Walsh Quantum mechanochemical coupling in halide perovskite solar cells	14.00	Min Whan Jung Remembering rewarding futures: a simulation-selection model of the hippocampus
14.25	Young Hee Lee van der Waals materials and heterostructures: synthesis and Coulomb drag transistor	14.25	Leon Lagnado An amplitude code transmits information at a visual synapse
14.50	Discussion	14.50	Discussion
15.00	Tea		
Session 3: Novel material systems		Session 3: Inherited and acquired synaptopathies	
15.30	Kookrin Char 2DEG state at the BaSnO ₃ /LaInO ₃ polar interface	15.30	Eunjoon Kim NMDA receptor dysfunction and sexual dimorphism in mouse models of autism
15.55	Ki Tae Nam Peptide encoded chirality in single plasmonic nanoparticles	15.55	Angela Vincent Autoantibodies and the brain
16.20	Discussion	16.20	Discussion
16.30	Alex Gibbs ¹⁹³ Ir – opening the door to high quality neutron scattering studies of iridium-based materials	16.30	Inhee Mook-Jung A breakdown in metabolic reprogramming causes microglia dysfunction in Alzheimer's disease
16.55	Hamish Hei-Man Yeung <i>In-situ</i> investigation of metal-organic framework formation	16.55	David Beeson Congenital myasthenic syndromes: new genes and better treatment
17.20	Discussion	17.20	Discussion
17.30	Pre-dinner talk (Wolfson 1)		
18.10	Drinks reception and Dinner		

Thursday 30 May 2019			
Materials science		Neuroscience	
Session 4: Low dimensional materials		Session 4: Synaptic circuit disorders	
09.00	Phil King Electronic structure and charge ordering of 2D quantum materials	09.00	Jeong-Ho Lee Deciphering brain somatic mutations in human neurological disorders
09.25	Moon-Ho Jo Epitaxial 2D electrical circuitry on atomically thin van der Waals semiconductors	09.25	Annette Dolphin Neuronal calcium channel trafficking and function: relevance to chronic pain
09.50	Discussion	09.50	Discussion
10.00	Han Woong Yeom Topological excitations in low dimensional electronic systems for robust informatics	10.00	Sung joong Lee Negr1 controls adult hippocampal neurogenesis and affective behaviours
10.25	Jong-Hyun Ahn Two-dimensional materials for wearable electronic and optoelectronic devices	10.25	Ian D Forsythe Kv3 voltage-gated potassium channels: their role in action potential repolarisation and in brainstem auditory processing
10.50	Discussion	10.50	Discussion
11.00	Coffee		
Session 5: Spin-orbit coupling		Session 5: Circuit formation and learning	
11.30	Je-Geun Park Spin-orbit entanglement in 3D transition metal compounds	11.30	Ji Won Um Mechanisms of activity-dependent inhibitory synapse development: implication with epilepsy
11.55	Ara Go Spin-orbit coupled ground state in strongly correlated insulator CuAl_2O_4	11.55	Kinga Bercsenyi To be or not to be: life or death decisions during brain development
12.20	Discussion	12.20	Discussion
12.30	LUNCH		
Session 6: Free electron lasers		Session 5: Circuit formation and learning cont.	
13.30	Hyun-Joon Shin X-ray free electron laser at Pohang Accelerator Laboratory (PAL-	13.30	Jaewon Ko Molecular principles of mammalian GABAergic synapse formation

	XFEL) for materials science research		
13.55	Malcolm McMahon Exploiting XFELs for a new generation of extreme conditions science	13.55	Michael Kohl A role for the retrosplenial cortex in latent learning?
14.20	Discussion	14.20	Discussion
14.30	Tea		
Session 7: Magnetic and superconducting materials		Session 6: Sensorimotor circuits	
15.00	Philip Kim Exciton superfluid and ferromagnetic superconductivity in graphene	15.00	Seung-Hee Lee Functional dissection of neural circuits for sensory integration and perceptual decision
15.25	Fabio Donati A magnetic bit made of a single atom	15.25	James Jepson Dyskinetic <i>Drosophila</i> : using fruit flies to study hyperkinetic movement disorders
15.50	Discussion	15.50	Discussion
16.00	Paolo G Radaelli Magnetic crystallography and beyond: magneto-structural textures in functional materials from diffraction and spectroscopy	16.00	Jeongjin Kim Cognitive-motor integration in basal ganglia outputs
16.25	Suchitra Sebastian Unconventional phases of strongly correlated matter	16.25	Esther Becker New insights into cerebellar disorders
16.50	Discussion	16.50	Discussion
17.00	Joint summary	17.00	Joint summary
17.15	CLOSE		