Joint KPS-AKPA Symposium on New Frontiers in Physics

Report of Contributions

https://indico.cern.ch/e/690003

Contribution ID: **1** Type: **not specified**

Intrinsic conduction mechanism in polymer nanofibers (15'+ 10')

Sunday 4 March 2018 13:30 (25 minutes)

Presenter: Prof. YUNG WOO, Park (Seoul National University)

Contribution ID: **2** Type: **not specified**

Chiral Edge Mode in the Coupled Dynamics of Magnetic Solitons in a Honeycomb Lattice (10'+ 5')

Sunday 4 March 2018 15:05 (15 minutes)

Presenter: Dr KIM, Se Kwon (UCLA)

Contribution ID: **3** Type: **not specified**

Tiered synchronization to traveling-wave state through a metastable state (10'+ 5')

Sunday 4 March 2018 14:10 (15 minutes)

Presenter: PARK, Jinha (Seoul National University)

Contribution ID: **4** Type: **not specified**

Surprises, puzzles, and job opportunities in the IBS (15' + 10')

Sunday 4 March 2018 14:25 (25 minutes)

Presenter: Prof. GRANICK, Steve (UNIST IBS Center)

Contribution ID: **5** Type: **not specified**

Presentation by a young scientist (10'+ 5')

Contribution ID: **6** Type: **not specified**

Presentation by a young scientist (10'+ 5')

Contribution ID: **7** Type: **not specified**

Atomic Electron Tomography: Probing 3D Structure and Physical Properties at the Single-Atom Level (10' + 5')

Sunday 4 March 2018 13:55 (15 minutes)

To understand material properties and functionality at the fundamental level, it is essential to precisely determine their 3D atomic arrangement. For crystalline materials, crystallography can provide this information. However, perfect crystals are rare in nature. Real materials often contain crystal defects, surface reconstructions, nanoscale heterogeneities, and disorders, which strongly influence material properties and performance. Here, we present atomic electron tomography (AET) for 3D structure determination of crystal defects and disordered materials at the single-atom level. By combining the tomographic tilt series acquired from aberration corrected electron microscopes with advanced algorithms [1], we localized the coordinates of individual atoms and point defects in materials with a 3D precision of ˜19 pm, and determined full 3D strain tensor [2]. More recently, we determined the 3D coordinates of 6,569 Fe and 16,627 Pt atoms in an FePt nanoparticle, and correlated chemical order/disorder and crystal defects with material properties at the individual atomic level [3].

[1] A. Pryor, *Y. Yang* et al., Sci. Rep. 7:10409 (2017).
[2] R. Xu et al., Nature Mater. 14, 1099-1103 (2015).
[3] Y. Yang et al., Nature 542, 75-79 (2017).

Presenter: Dr YANG, Yongsoo (UCLA)

Contribution ID: **8** Type: **not specified**

Raman studies of the antiferromagnetic phase transition in atomically thin NiPS3 (10'+ 5')

Sunday 4 March 2018 14:50 (15 minutes)

Presenter: KIM, Kangwon (Sogang University)

Contribution ID: **9** Type: **not specified**

First-principles molecular dynamics simulations of ligand-passivated cadmium selenide quantum dots ($10^{'}$+ $5^{'}$)

Presenter: KIM, Siyoung (University of Chicago)

Contribution ID: **10** Type: **not specified**

Presentation by an invited speaker (15’+ 5’)

Contribution ID: **11** Type: **not specified**

Presentation by a young scientist (10'+ 5')

Contribution ID: **12** Type: **not specified**

Presentation by a young scientist (10'+ 5')

Contribution ID: **13** Type: **not specified**

Understanding flowing soap films (10'+ 5')

Sunday 4 March 2018 16:30 (15 minutes)

Flowing soap films are useful tools to simulate two-dimensional flows, but not all of their physical properties, e.g. elasticity, are well understood. The presence of surfactant not only gives rise of the elasticity that stabilized the two-dimensional slab of water, but also imparts it compressibility. To comprehend the hydrodynamics on soap films, it is desirable to measure the surface tension and the elasticity. In this talk, we present experimental measurements of these quantities. The elasticity is measured by using the gas-dynamics analogy of the soap film flows, and the surface tension is measured by balancing it to a known weight. The measurement are rationalized using two-parameter model.

Presenter: Dr KIM, Ildoo (Brown University)

Contribution ID: **14** Type: **not specified**

Carrier injection enhancement via directly deposited thiol-molecules on MoS2 field-effect transistors (10′ + 5′)

Sunday 4 March 2018 16:15 (15 minutes)

Presenter: CHO , Kyungjune (Seoul National University)

Contribution ID: **15** Type: **not specified**

Panel Discussion on Career Opportunities and Development

Sunday 4 March 2018 17:05 (1 hour)

Presenters: Dr KIM, Hyun-Tak (ETRI); Prof. JOO, Kyungseon (University of Connecticut); Prof. KIM, Myoung-Hwan (University of Texas Rio Grande Valley); Prof. LEE, Takhee (Seoul National University)

Contribution ID: **16** Type: **not specified**

AKPA's Outstanding Young Research Award Ceremony (5') + Awardee Presentation (15' + 5')

Sunday 4 March 2018 15:50 (25 minutes)

Presenter: Prof. KIM, Myoung-Hwan (University of Texas Rio Grande Valley)

Contribution ID: **17** Type: **not specified**

Career Paths for Physicists (10’ + 10’) by Founder and President of QuantTera

Sunday 4 March 2018 16:45 (20 minutes)

Presenter: Dr KIM, Matt (QuantTera)