

University of Tokyo-Chalmers University of Technology Workshop on Advanced Materials and Transmission Electron Microscopy

Date: March 30 2017

Place: Sanjo-Kaikan at UT Hongo Campus

March 30 2017 9:00-9:20 (Session Chair: Prof. Naoya Shibata)

Welcome: Prof. Yuichi Ikuhara (UT)

Greeting: Prof. Tatsuya Okubo (UT: Dean-elected)

Greeting: Prof. Eva Olsson (Chalmers)

Greeting: Mr. Hiroshi Ando (JSPS International)

Session 1: Battery Materials (Session Chair: Prof. Yuichi Ikuhara)

9:20-9:50: Prof. Aleksandar Matic (Chalmers)

“New materials concepts for high-capacity LiS-batteries”

9:50-10:20: Prof. Atsuo Yamada (UT)

“Alluaudites as Battery Electrode Framework”

10:20-10:50 **Coffee Break**

Session 2: In-situ TEM (Session Chair: Prof. Wolfgang Jäger)

10:50-11:20: Prof. Magnus Hörnqvist Colliander (Chalmers)

“In-situ studies of deformation, fracture and phase transformations”

11:20-11:50: Prof. Yuichi Ikuhara (UT)

“In-situ TEM observation of fracture and deformation in ceramics”

11:50-12:20: Prof. Eva Olsson (Chalmers)

“In-situ TEM of electrically, mechanically and thermally induced effects in nanostructured materials”

12:20-13:30 **Photo & Lunch**

Session 3: Porous and Composite Materials (Session Chair: Prof. Teruyasu Mizoguchi)

13:30-14:00: Prof. Anders Palmqvist (Chalmers)

“Development of Iron-Chelating Ordered Mesoporous Carbons for Noble Metal Free Fuel Cell Catalysts”

14:00-14:30: Prof. Tatsuya Okubo (UT)

“Zeolite Synthesis beyond the Traditional Common Senses”

14:30-15:00: Prof. Leif Asp (Chalmers)

“Effect of graphitic microstructure on electrochemical capacity of carbon fibre electrodes for structural battery composites”

Session 4: Theoretical calculation (Session Chair: Prof. Eiji Abe)

15:00-15:30: Prof. Paul Erhart (Chalmers)

“From defects to alloys: Insight from atomistic simulations”

15:30-16:00: Prof. Teruyasu Mizoguchi (UT)

“Informatics for grain boundary research”

16:00-16:30 **Coffee Break**

Session 5: (S)TEM for Materials Science (Session Chair: Prof. Eva Olsson)

16:30-17:00: Prof. Uta Klement (Chalmers)

“White layer formation during hard turning of AISI 52100 steel”

17:00-17:30: Prof. Eiji Abe (UT)

“Structure and Unique Stabilization of Novel High-strength LPSO-Mg Alloys”

17:30-18:00: Prof. Wolfgang Jäger (Kiel/Chalmers)

“In Situ TEM Studies of Electrical Transport in III-V Semiconductor Nanowires under Strain”

18:00-18:30: Prof. Naoya Shibata (UT)

“Development of aberration-corrected differential phase contrast STEM for materials science”

18:40-20:30: **Banquet** (Ito International Research Center)

Date: March 31 2017 (Young Scientist Session)

Place: Institute of Engineering Innovation (BLDG. 9)

Session 6: In-situ TEM

09:00-09:20: Eita Tochigi (UT)

“Fracture surface analysis of alumina grain boundaries using in-situ TEM nanoindentation and atomic-resolution STEM”

09:20-09:40: Ludvig de Knoop (Chalmers)

“High-resolution imaging revealing structural changes to Au nanocones during electron cold-field emission using *in situ* TEM”

09:40-10:00: Takaaki Sato (UT)

“Development of MEMS combined with TEM setup for in-situ observation”

10:00-10:20: Norvik Voskanian (Chalmers)

“In situ nanoscale thermal characterisation of carbon based nanostructures using electron diffraction techniques”

10:20-10:30 **Coffee Break**

Session 7: STEM for Materials Science

10:30-10:50: Ryo Ishikawa (UT)

“Three-dimensional Imaging by Large-angle Illumination STEM”

10:50-11:10: Andrew Yankovich (Chalmers)

“Revealing new information about nanomaterials by improving the quality of STEM HAADF, EDS, and EELS data”

11:10-11:30: Fang Liu (Chalmers)

“Atom probe tomography of thermally grown alumina on a FeCrAl alloy”

11:40-12:40: UT Microscope Tour

13:00: Lunch & JEOL Tour