

3rd International Workshop on Frontier Applications of Superconducting Devices



June 14, 2013 (HE7 6). The 3rd International Workshop on Frontier Applications of Superconducting Devices was held in Shanghai, China, from May 30th to June 2nd, 2013. The workshop was organized by the State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences (SIMIT, CAS)

and Shanghai Center for Superconductivity, Chinese Academy of Sciences (SC2, CAS).

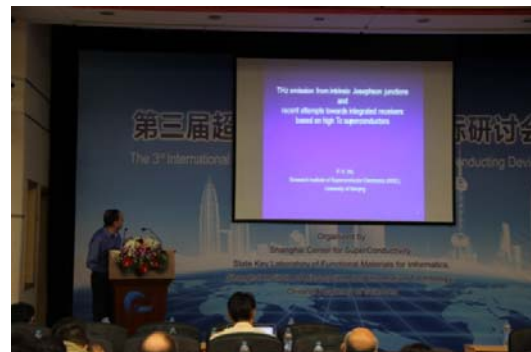
The workshop was divided into three sessions: session I on Superconducting Quantum Interference Device (SQUID) and its applications, session II on Superconducting Nanowire Single Photon Detector (SNSPD) and its applications and session III on others, including TES, MKIDs, SIS, SFQ etc.

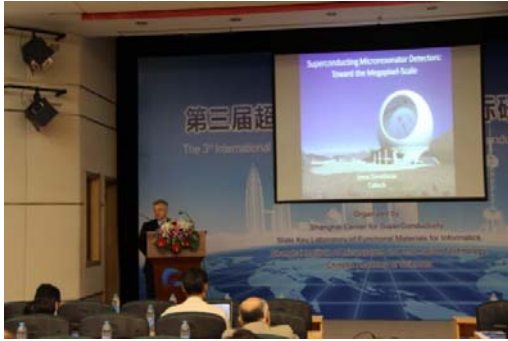
The workshop featured 4 keynote speeches and 30 invited talks with more than 80 participants from 8 countries. The keynote presentations are shortly summarized below, and illustrated by photos taken during talks:



Professor John CLARKE from University of California, Berkeley, USA presented the recent results on Magnetic Resonance Imaging of the Brain at 130 Micro-tesla. By using different echoes in the Carr-Purcell-Meiboom-Gill (CPMG) echo trains, they were able to distinguish blood, fat, brain tissue and cerebrospinal fluid etc. in human brain. The potentiality to image prostate cancer was also demonstrated.

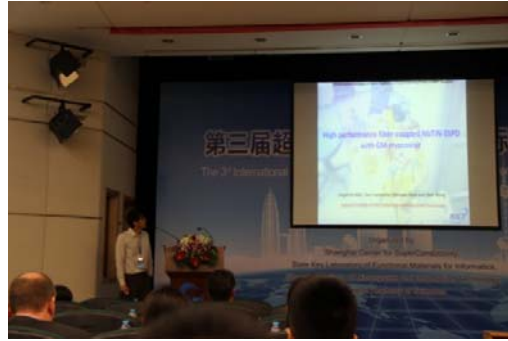
Professor Peiheng WU from Nanjing University, China presented their results on THz emission from intrinsic Josephson Junctions. By biasing junction array at 'high' voltage region, they are able to get frequency tunable THz radiation between 0.5 and 0.7 THz with very narrow linewidth.





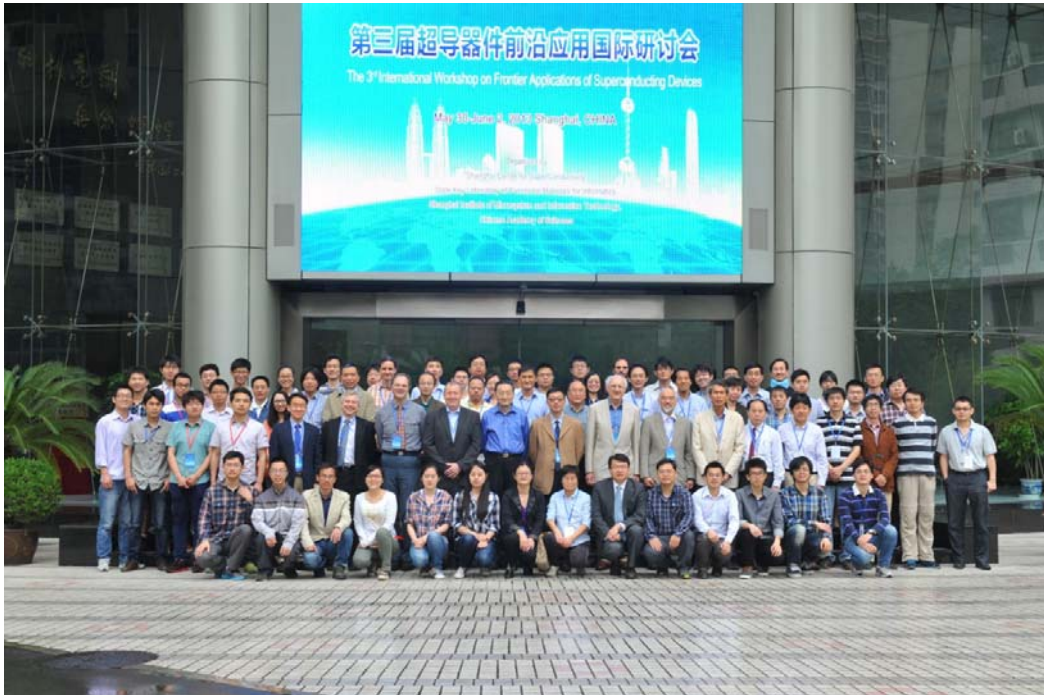
Prof. Jonas ZMUIDZINAS from California Institute of Technology, USA delivered his keynote talk entitled “Superconducting Micro-resonator Detectors: Toward the Megapixel Scale”. He reviewed the development of MKID and many impressive applications in astronomy. He also talked about some of the science opportunities enabled by the megapixel-scale instrument which is being made available these days.

Dr. Shigehito MIKI from National Institute of Information and Communications Technology, Japan gave a talk on High Performance Fiber-Coupled NbTiN Superconducting Nanowire Single-Photon Detectors with Gifford-McMahon Cryocooler. With a commercial two-stage cryocooler working at around 2K, they were able to achieve system detection efficiency as high as 70- 80% at 1.5 μm wavelength, a significant advancement in this fascinating field.



Prof. Xiaoming Xie, vice dean of the State Key Laboratory of Functional Materials for Informatics, chaired this workshop. He introduced the newly established Shanghai Centre for Superconductivity, Chinese Academy of Sciences (SC², CAS) with an emphasis on international cooperation. He expressed his strong wish for cooperation and encouraged people to use the advanced microfabrication facility to promote cooperation on superconducting electronics. The workshop was highly evaluated by the participants and may develop into regular events in the future.

For more details of the workshop, please download the workshop program/abstract using the following link: [Program and Abstracts.pdf](#). The group photo of participants is shown on the following page.



Group photo of the 3rd International Workshop on Frontier Applications of Superconducting Devices.