



Contribution ID: 23

Type: **Oral presentation**

## Gas scintillation Glass GEM detector for high-resolution X-ray imaging and CT

*Monday, 22 May 2017 15:50 (20 minutes)*

A high resolution X-ray imaging gaseous detector has been successfully developed with Glass GEM. The imaging system consists of a chamber filled with scintillating gas (Ar/CF<sub>4</sub>, Kr/CF<sub>4</sub>, Xe/CF<sub>4</sub>), inside of which Glass GEM (G-GEM) is mounted for high gain gas multiplication. Since the gas gain of the G-GEM is much higher compared to conventional GEMs, ultra high yield scintillation photons are produced during the avalanche process. These photons can be easily detected by a mirror-lens-CCD-camera system and a high resolution X-ray radiograph is formed. We demonstrate X-ray imaging performance of Glass GEM based X-ray imager with 20 - 60 kV X-ray tube, and combination of various gas (Ar/CF<sub>4</sub>, Kr/CF<sub>4</sub>, Xe/CF<sub>4</sub>). High spatial resolution, high speed image forming and 3D CT is also demonstrated.

**Primary author:** FUJIWARA, Takeshi (National Institute of Advanced Industrial Science & Technology )

**Co-authors:** MITSUYA, Yuki (The University of Tokyo); Prof. TAKAHASHI, Hiroyuki (The University of Tokyo); Dr TOYOKAWA, Hiroyuki (National Institute of Advanced Industrial Science and Technology (AIST))

**Presenter:** FUJIWARA, Takeshi (National Institute of Advanced Industrial Science & Technology )

**Session Classification:** MPGD detector technologies - 4 (Chair: Matt Posik)