Contribution ID: 24

Type: Talk

## SAXS measurement of sub-micron solid-density columnar plasma expansion induced by a high-intensity laser at SACLA

Friday 5 November 2021 11:00 (25 minutes)

Application of small-angle x-ray scattering (SAXS) to a measurement of the temporal evolution of plasma expansion with nanometer spatial and femtosecond temporal resolution was established recently [1]. Here a grating target with a sub-micron structure was irradiated by a high-intensity laser pulse, and the grating expansion in the lateral direction was probed by an XFEL pulse. In our research, we utilized a silicon rod assembly with a sub-micron structure as a target instead of a grating, that is the dimension of the structure is extended from two to three. The temporal evolution of the columnar plasma induced by a high-intensity laser pulse was probed by SAXS changing the diameter and interval of the rods. In this talk, the advantages and disadvantages of SAXS for the three-dimensional structure will be discussed. [1] Kluge et al., Phys. Rev. X 8, 031068 (2018).

**Primary authors:** OTA, Masato; MATUMOTO, Yushiro (Osaka Univeristy); PIKUZ, Tatiana (Osaka Unveristy); RODEL, Melanie (HZDR); PIROZHKOV, Alexander (QST); EGASHIRA, Shunsuke (Osaka Univeristy); GAR-CIA, Alejandro (HZDR); MORACE, Alessio (Osaka University); ALBERTAZZI, Bruno (LULI); KOENIG, Michel (LULI); YABUUCHI, Toshinori (RIKEN); TOGASHI, Tadashi (RIKEN); INUBUSHI, Yuichi (RIKEN); KEICHI, Sueda (RIKEN); OZAKI, Norimasa (Osaka University); NAKAMURA, Hirotaka (Osaka University); MATSUI, Ryutaro (Kyoto University); KURAMITSU, Yasuhiro (Osaka University); HABARA, Hideaki (Osaka University); COWAN, Thomas (HZDR); NAKATSUTSUMI, Motoaki (Euro XFEL); FUKAMI, Kazuhiro (Kyoto University); KLUGE, Thomas (HZDR); FUKUDA, Yuji (QST); KISHIMOTO, Yasuaki (Kyoto University); SAKAWA, Youichi (Osaka University)

Presenter: OTA, Masato

Session Classification: Talks