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**Initial operation of the tangential x-ray pinhole camera system for KSTAR plasma** SIWON JANG, S.G. LEE, M.K. MOON, C.H. LIM, S.H. LEE, WONHO CHOE, KSTAR TEAM, KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY TEAM, NATIONAL FUSION RESEARCH INSTITUTE COLLABORATION, KOREA ATOMIC ENERGY RESEARCH INSTITUTE COLLABORATION — The tangential soft x-ray pinhole camera (TXPC), which is a fast, two-dimensional (2-D), soft x-ray imaging system with a toroidal view, has been developed for studying MHD activities and transport in KSTAR plasmas. It consists of 50x50 channels multi-wire proportional counter (MWPC) filled with a gas mixture of 78% Kr, 20% C<sub>2</sub>H<sub>6</sub>, and 2% CF<sub>4</sub> at atmospheric pressure. It can measure 2-D x-ray emissivity with a high and controllable intrinsic gain ( $> 10^4$ ), high spatial ( $< 2$  cm) and high temporal ( $> 100$  kHz) resolution with a 100 MHz DAQ system. They can assist analysis of plasma profile, MHD modes, localization and effects of auxiliary heating and transport phenomena from core to edge. Also, the TXPC employs a duplex multi-wire proportional x-ray (DMPX) detector that combines two MWPCs in series. It will provide simultaneous measurements of plasma x-ray emission in two spectral ranges using the first MWPC as an absorber filter for the second one. The signals of the first and the second MWPC allow providing the fast 2-D measurement of the plasma electron temperature. The TXPC system is installed on KSTAR in 2011, and initial plasma data and an assessment of the system performance are presented.

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