

Abstract Submitted
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X-Ray Spectroscopic Imaging of Tokamaks with Photon-Counting Hybrid Pixel Array Detectors (PAD)¹ K.W. HILL, M. BITTER, L. DELGADO-APARICIO, N. PABLANT, Princeton University, PPPL, P. BEIERSDORFER, LLNL, M.L. REINKE, Y. PODPALY, J.E. RICE, MIT, PSFC, S.G. LEE, NFRI, Korea, Y. SHI, EAST, ASIPP, China, CH. BROENNIMANN, E. EIKENBERRY, Dectris, Ltd. — Hybrid PADs, such as Pilatus (www.dectris.com) offer the possibility of 1D and 2D x-ray spectroscopic imaging of tokamaks with good spatial and temporal resolution, using pinhole x-ray cameras. These cameras can be either radially viewing (1D) or tangentially viewing (2D), and can provide fast profiles of electron temperature, impurity concentration and transport, and non-thermal electron distributions. Each pixel counts x-ray photons having energy above a threshold value, and different groups of pixels are set to different thresholds to provide spectral discrimination. X-ray camera designs, simulations of performance, and progress on energy- threshold calibration on a per-pixel basis will be presented.

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