

Abstract Submitted  
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**A novel tomographic hard-X-ray spectrometer for suprathermal electron studies in the TCV tokamak** STEFANO CODA, SILVANO GNESIN, PHILIPPE MARMILLOD, JEAN-MICHEL MAYOR, BASIL DUVAL, RENÉ CHAVAN, CRPP-EPFL — ECRH and ECCD, disruptive events, and sawtooth activity have been demonstrated to produce suprathermal electrons in fusion devices, motivating increasingly detailed studies of the generation and dynamics of this suprathermal population. Past hard-X-ray (HXR) and ECE measurement in the TCV tokamak, which is equipped by a 4.5-MW ECRH system, have led to the identification of the crucial role of spatial transport in the physics of ECCD. The observation of a poloidal asymmetry in the emitted suprathermal bremsstrahlung radiation has motivated the design of a novel, 4-camera tomographic HXR spectrometer, now in the final construction phase. The design, based on CdTe detector technology and on a modified Soller collimator concept, was aided by simulations of tomographic reconstruction and optimized for the greatly variable shapes and positions of TCV plasmas. Two of the cameras are rotatable to allow tangential viewing in selected scenarios. Energy analysis is performed by digital signal post-processing.

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