

Abstract Submitted
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Design of a tangential Phase Contrast Imaging diagnostic for the TCV tokamak STEFANO CODA, ALESSANDRO MARINONI, RENE CHAVAN, JEAN CLAUDE MAGNIN, GUY POCHON, Ecole Polytechnique Federale de Lausanne (EPFL), Centre de Recherches en Physique des Plasmas CH-1015 Lausanne, Association Euratom-Conf. Suisse, ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (EPFL), CENTRE DE RECHERCHES EN PHYSIQUE DES PLASMAS TEAM — A PCI diagnostic has been designed, built and installed in the TCV tokamak, employing a 7-cm wide CO₂ laser beam in a near-toroidal launch direction. The system can resolve wavelengths in the range 0.1 to 7 cm, sampling 32 chords at 12.5 Msamples/sec, thus appraising microinstabilities ranging from ion to electron spatial scale lengths. Being an imaging technique it does not face difficulties in investigating highly inhomogeneous regions, such as transport barriers. The tangential configuration, combined with appropriate spatial filtering techniques, provides an excellent spatial resolution, of the order of 1% of the minor radius. The spatial filtering also allows the selection of different spatial regions (e.g. deep core or edge). Wavelengths and correlation properties can be recovered from the spatial mapping. First data will be presented along with preliminary interpretation and comparisons with linear gyrokinetic simulations.

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