**HTPD 2018**



Contribution ID : **269**                    Type : **not specified**

# 14.9 Velocity-space tomography using prior information at MAST

Thursday, 19 April 2018 10:30 (120)

Velocity-space tomography provides a way of diagnosing fast ions in a fusion plasma by combining measurement from multiple instruments. We use a tangentially viewing and a perpendicularly viewing fast-ion D-alpha (FIDA) diagnostic installed on the spherical tokamak MAST (before the upgrade) to do velocity space tomography of the fast-ion distribution function. To make up for the scarce amount of data, prior information is included in the inversions. We impose a non-negativity constraint, exclude the velocity space associated with null-measurements, and we encode the belief that the distribution function does not extend to higher energies than neoclassically expected. This allows us to study the fast-ion velocity distributions and the derived fast-ion densities before and after a sawtooth crash.

Primary author(s) :   MADSEN, Birgitte (Technical University of Denmark)

Co-author(s) :   SALEWSKI, Mirko (Technical University of Denmark);  JONES, Owen (CCFE, Culham Science Centre);  JACOBSEN, Asger (Max-Planck-Institut für Plasmaphysik);  HUANG, Juan (Institute of Plasma Physics, Chinese Academy of Sciences);  MCCLEMENTS, Ken (CCFE, Culham Science )

Presenter(s) :   MADSEN, Birgitte (Technical University of Denmark);  SALEWSKI, Mirko (Technical University of Denmark);  JONES, Owen (CCFE, Culham Science Centre);  JACOBSEN, Asger (Max-Planck-Institut für Plasmaphysik);  HUANG, Juan (Institute of Plasma Physics, Chinese Academy of Sciences);  MCCLEMENTS, Ken (CCFE, Culham Science )

Session Classification :   Session #14. Thursday Morning Poster Session