Contribution ID: **501** Type: **Poster**

EX/P6-23: MHD Activity in the Alfvén Range of Frequencies in the H-1NF Heliac

Thursday, 11 October 2012 14:00 (4h 45m)

The H-1 flexible heliac with its wide range of magnetic configurations is an ideal device for studying instabilities in the low to mid Alfvenic range –low to hundreds of kHz, in H/He RF produced plasma around 0.5T. More than 80 magnetic probes in three arrays, and several optical imaging diagnostics provide data on poloidal, helical and radial mode structures. In addition to spontaneously excited modes, excitation is provided through a phased pair of loops close to the plasma, and a recent upgrade has facilitated scans of the dependence on magnetic field. Sensitive multi channel interferometry, framing cameras synchronised with the mode, and gas puff illumination techniques provide density fluctuation data in two dimensions. The vast data set acquired shows very clear dependences on transform and density, made possible by the low shear and precise control of configuration. Data are compared with predictions of several codes, notably CAS3D, and CONTI, and show both Alfvenic GAE-like and/or acoustic-like (BAE) behaviour in different regimes. The relationship to these modes and GAMs is discussed. Investigation of the influence of magnetic islands on plasma has shown several interesting effects, including a local enhancement of confinement under some conditions. Mapping and probe results will be presented, along with ne fluctuation profiles from a new, high sensitivity multi-chord interferometer, and results from Alfven mode excitation experiments.

Country or International Organization of Primary Author

Australia

Primary author: Mr BLACKWELL, Boyd (Australia)

Co-authors: Dr KOENIES, Axel (Max-Planck-Institut für Plasmaphysik, Greifswald); Dr NÜHRENBERG, Carolin (Max-Planck-Institut für Plasmaphysik); Dr PRETTY, David (Australian National University); Dr BROTANKOVA, Jana (Australian National University); Mr BERTRAM, Jason (Australian National University); Mr READ, Jesse (Australian National University); Prof. HOWARD, John (Australian National University); Dr HOLE, Matthew (Australian National University); Dr FITZGERALD, Michael (Australian National University); Ms THAPAR, Nandika (Australian National University); Prof. DEWAR, Robert (Australian National University); Mr HASKEY, Shaun (Australian National University); Dr MA, Shuiliang (Australian National University)

Presenter: Mr BLACKWELL, Boyd (Australia)

Session Classification: Poster: P6

Track Classification: EXW - Magnetic Confinement Experiments: Wave–plasma interactions; current drive; heating; energetic particles