Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Synthetic Aperture Microwave Imaging on MAST[1] SIMON FREETHY, University of York / CCFE, BILLY HUANG, Durham University / CCFE, VLADIMIR SHEVCHENKO, CCFE, RODDY VANN, University of York — A novel microwave imaging device, the Synthetic Aperture Microwave Imaging (SAMI) radiometer has been designed and built to obtain the first fully 3D images of microwave mode conversion in the edge of tokamak plasmas to facilitate high time resolution measurements of the edge current density. The imaging technique has been adapted from radio astronomy and Earth remote sensing, but with high time resolution ($\sim 5\mu s$) due to the exceptionally bright source. This diagnostic has no optical components, instead using frequency down converting electronics and a digitiser. All image reconstructions are then done in post-processing. First data for SAMI has been obtained at the time of abstract submission and is currently under analysis. Preliminary results will be presented and discussed.

[1]This work was funded partly by EPSRC under grant EP/H016732, by the University of York, by the RCUK Energy Programme and EURATOM.

Simon Freethy
University of York / CCFE

Date submitted: 13 Jul 2011 Electronic form version 1.4