

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Prospects of the Minimum Fisher Regularisation in the Experimental Analyses of Plasma Particle Transport at JET JAN MLYNAR, GEORGES BONHEURE, ANDREA MURARI, JET EFDA, JET EFDA CONTRIBUTORS COLLABORATION — Minimum Fisher Regularisation (MFR) proved to be a rapid and robust method in solving ill-conditioned inverse problems. This approach has been recently applied at JET for tomographic analysis of neutron emissivity based on data acquired by the JET neutron cameras. The reconstructed time evolution of 2D emissivity after tritium puff clearly shows the influx of fuel to the plasma core. Under certain assumptions, the observed emissivity evolution can be used to estimate fuel transport coefficients (i.e. diffusion coefficient and pinch velocity) near plasma core, including a possibility to trace down spatial behaviour of the two coefficients. In the procedure, Fuel Ratio method and Singular Value Decomposition analysis provide powerful tools. Preliminary results will be presented in comparison with recently published trends in tritium confinement. Further possible optimisation of the existing regularisation constraints, in particular the properties of the emissivity smoothness, will be discussed.

Jan Mlynar
JET EFDA

Date submitted: 23 Jul 2006

Electronic form version 1.4