**Stabilization of NTMs using real-time equilibrium reconstruction on TCV** DOOHYUN KIM, TIMOTHY P. GOODMAN, OLIVIER SAUTER, HOANG BAO LE, JEAN-MARC MORET, Ecole Polytechnique Federale de Lausanne, Centre de Recherches en Physique des Plasmas, Association Euratom-Confederation Suisse, CRPP-TCV TEAM — In tokamak plasmas, Neoclassical Tearing Modes (NTMs) can limit $\beta$ values to below the ideal MHD limit and degrade plasma confinement [1]. Therefore, to reach the high performance tokamak regime, control and stabilization of NTMs is essential; it can be achieved using localized electron cyclotron heating and current drive (ECH/ECCD) [2]. In previous TCV experiments, NTM stabilization was obtained as ECH/ECCD deposition was swept in one direction until the mode disappeared [3]. We now enhance our control of NTMs using a real-time (RT) version of the equilibrium code LIUQE [4]. RT-LIUQE gives the safety factor (q) profile, and from pre-calculated ray-tracing and an assumption of the mode rational surface, a target q is converted to a requested EC launcher angle. When an NTM appears, one, or several, EC beams are directed at the NTM and the mode is successfully stabilized. *This work was supported in part by the Swiss National Science Foundation.*

[1] Sauter O. *et al* 1997 *Phys. Plasmas* **4** 1654
[2] La Haye R.J. 2006 *Phys. Plasmas* **13** 055501
[3] Felici F. *et al* 2012 *Nucl. Fusion* **52** 074001
[4] Hofmann F. *et al* 1988 *Nucl. Fusion* **28** 1871

Doohyun Kim
Ecole Polytechnique Federale de Lausanne, Centre de Recherches en
Physique des Plasmas, Association Euratom-Confederation Suisse