

Runaway Electron Studies with Hard X-Ray and Microwave Diagnostics in the FT-2 Low-Hybrid Current Drive Discharges

A.E. Shevelev^a, E.M. Khilkevitch^a, S.I. Lashkul^a, V.V. Rozhdestvensky^a, A.B. Altukhov^a, D.V. Kouprienko^a, I.N. Chugunov^a, D.N. Doinikov^a, L.A. Esipov^a, D.B. Gin^a, M.V. Iliasova^a, V.O. Naidenov^a, N.S. Nersesyan^a, I.A. Polunovskiy^a, A.V. Sidorov^a and V.G. Kiptily^b

^a*Ioffe Institute, Politekhnikeskaya 26, St Petersburg 194021, Russian Federation*

^b*CCFE, Culham Science Centre, Abingdon, Oxon, X14 3DB, UK*

- A gamma-ray spectrometer developed for gamma-ray diagnostics of ITER and based on LaBr₃(Ce) scintillator has been used in measurements of hard X-ray emission generated by runaway electrons in the FT-2 tokamak discharges with LHCD.
- A spectrum deconvolution code DeGaSum was used for reconstruction of the energy distribution of runaway electrons escaping from the plasma and interacting with materials of the FT-2 limiter in the vacuum vessel.
- Evolution of runaway electron E_{max} in shots with LHCD was investigated with time resolution 1-5 ms.
- During the studies clear correlation between input LHCD power and E_{max} was observed only at low LH power input, when Z_{eff} varied weakly at RF pulse. Deceleration of E_{max} ramp-up in this case mainly was caused by loop voltage decrease.
- Bursts looking like sawtooth oscillations were observed on MHD and HXR signals during LHCD runs. Differences in RE energy distributions registered in bursts and between them were observed.