Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Optimization of time-averaged power flux of RMP footprints in ITER LUKAS KRIPNER, Institute of Plasma Physics of the CAS, 182 00 Prague, Czech Republic, ALBERTO LOARTE, ITER Organization, 13115 St Paul Lez Durance, France, PAVEL CAHYNA, JAKUB URBAN, MATEJ PETERKA, Institute of Plasma Physics of the CAS, 182 00 Prague, Czech Republic, TODD EVANS, General Atomics, PO Box 85608, San Diego, CA 92186 5608, USA, OLIVER SCHMITZ, University of Wisconsin - Madison, Department of Engineering Physics, 53706 Madison, WI, USA, RADOMIR PANEK, Institute of Plasma Physics of the CAS, 182 00 Prague, Czech Republic — Plasma-facing components (PFCs) in the ITER tokamak have engineering limits of the incident heat flux ($\sim$10 MWm^{-2}). These limits may be exceeded for example by Edge Localized Modes (ELMs) or by Resonant Magnetic Perturbations (RMPs). The time-averaged power flux can be reduced by a toroidal rotation of the ITER ELM coils (IECs) current waveform. However, such a rigid rotation results in large mechanical loads to IECs, which can significantly decrease their lifetime. We evaluate various options to decrease the required variations in the IECs currents while keeping the time-averaged power flux on the ITER divertor below the engineering limit. We use the Bayesian optimization algorithm to seek the optimum configuration. This method works efficiently even for a moderately large dimensionality, in our case up to several tens. For the analysis of a particular waveform we use the tangle distance method [Cahyna et al. Nucl. Fusion 2014], which is, due to its semi-analytical nature, fast enough to evaluate a wide range of options and plasma scenarios.

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Date submitted: 21 Jul 2017 Electronic form version 1.4