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Nonlinear evolution of multi-helicity neoclassical tearing modes in HL-2A low rotation plasmas

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In HL-2A low rotation and relatively low density plasmas, the critical threshold of the intrinsic error field penetration will be decreasing. And the multi-helicity islands can be seeded by the non-axisymmetric error field penetration, and lead to the change of rotation profile, enhanced transport or even disruption. Sheared flow arising from momentum injection can suppressed the coupled islands. For understanding the experimental results, numerical modelling will be carried out by means of reduced magnetohydrodynamic simulations. The results provide important evidence for NTMs stability predictions and their nonlinear dynamic in the low flow plasmas, such as ITER.

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