

Abstract Submitted  
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**How DEMO Should Look if ITER Fails** PAUL GARABEDIAN,  
Courant Institute of Mathematical Sciences, New York University — Runs of the NSTAB equilibrium and stability code show there are many 3D solutions of the advanced tokamak problem subject to axially symmetric boundary conditions. These numerical simulations based on mathematical equations in conservation form predict that the ITER project will encounter pervasive disruptions and ELMs crashes. Test particle runs of the TRAN Monte Carlo code show that for quasineutrality to prevail in tokamaks a certain minimum level of 3D asymmetry of the magnetic spectrum is required which is comparable to that found in quasiaxially symmetric (QAS) stellarators. The computational theory suggests that a QAS stellarator with proportions like those of ITER might make a better magnetic fusion reactor. There is an attractive candidate with major radius 8m, plasma radius 3m, and magnetic field 5T. The external field is generated by just twelve moderately twisted coils that seem not hard to construct. Papers about this configuration have been published recently by the author in the Proc. Natl. Acad. Sci. U.S.A.

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