Abstract Submitted
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Improving the Physics Basis for Quasihelically Symmetric Stellarators[1] AARON BADER, B.J. FABER, J.C. SCHMITT, D.T. ANDERSON, University of Wisconsin - Madison, M. DREVLAK, IPP Greifswald, J.M. DUFF, H. FRERICHS, C.C. HEGNA, T.G. KRUGER, University of Wisconsin - Madison, M. LANDREMAN, University of Maryland, I.J. MCKINNEY, L. SINGH, J.M. SCHROEDER, P.W. TERRY, University of Wisconsin - Madison, A.S. WARE, University of Montana — Quasisymmetric stellarators are an attractive candidate for fusion reactors and pilot plants due to low neoclassical transport, and the promise of transport barriers enabled by low flow damping in the symmetry direction. In particular quasihelical symmetry promises short connection lengths with relatively low bootstrap currents. Expanding the physics basis for reactor relevant configurations requires improving performance with regard to energetic particles confinement, turbulent transport, MHD stability, divertor performance, and feasibility for coils. Each of these targets and new improvements is discussed in turn. For a fusion reactor all of these parameters need to be optimized simultaneously, and some of the tradeoffs will be examined. In addition, the poster will discuss improved optimization algorithms [1]. 1: A. Bader "Advancing the Physics Basis for Quasihelically Symmetric Stellarators" Submitted to JPP

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Aaron Bader
University of Wisconsin - Madison

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