Concept for Numerical Calculation of 3D MHD Equilibria with Flow and FLR Effects[1] DANIEL RABURN, ATSUSHI FUKUYAMA, Kyoto University, Graduate School of Engineering — Equilibrium flows and 3D effects can significantly impact plasma stability and energy confinement. Further, in equilibria with flow, FLR effects can play an important role. Presently, there exist a number of codes which can calculate MHD equilibria with a subset of the above effects, such as: the FLOW code,[1] the PIES code [2], and a recently developed code for calculating axisymmetric equilibria with flow and hot ions in the large aspect-ratio limit [3]. Using insights gained from these codes, the concept for a new code for calculation of 3D MHD equilibria with flow and FLR effects is being developed; the code is called the Kyoto ITerative Equilibrium Solver (KITES).

[1] L. Guazzotto, R. Betti, J. Manickam, and S. Kaye, Phys. Plasmas 11, 604 (2004).
[2] H. S. Greenside, A. H. Reiman and A. Salas, J. Comput. Phys., 81(1): 102-136, (1989).
[3] D. Raburn and A. Fukuyama, Phys. Plasmas 17, 122504 (2010).

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