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Elliptic and hyperelliptic magnetohydrodynamic equilibria[1]
HENRI TASSO, Max-Planck Institute for Plasmaphysics, Euratom Association, D-85748 Garching, Germany, GEORGE THROUMOULOPOULOS[2], University of Ioannina, Association Euratom-Hellenic Republic, Section of Theoretical Physics, GR 451 10 Ioannina, Greece — We construct three classes of axisymmetric equilibria with incompressible flow nonaligned with the magnetic field reducible to elliptic integrals and having similar magnetic field characteristics. They are restricted by appropriate side conditions like "isothermal" magnetic surfaces, "isodynamicity" or $P + B^2/2$ constant on magnetic surfaces. The third class is closely related to recent equilibria found in Schief, Phys. Plasmas 10, 2677 (2003). In contrast to field aligned flows, all solutions found here have nonzero toroidal magnetic field on and elliptic surfaces near the magnetic axis.

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