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**Magnetofluid computations inside a spherical shell.** DAVID C. MONTGOMERY*, Dartmouth College, Hanover, NH 03755, PABLO MININNI*, NCAR, Boulder, CO 80307, LEAF TURNER, Cornell University, Ithaca, NY 14850
— Magnetohydrodynamic (MHD) dynamo computations have been carried out inside a perfectly conducting spherical shell in the absence of rotation (Mininni and Montgomery, arXiv:physics/0602147). Our emphasis has been on generic dynamo behavior rather than on realistic parameter ranges. The inclusion of a Coriolis force in the equation of motion has been implemented and introduces several new features into the dynamics. Sudden reorientations of the magnetic dipole moment have not been uncommon. The computation is spectral and expands the solenoidal fields of the problem in terms of orthonormal eigenfunctions of the curl. The next step in realism might be the replacement of the conducting shell by an insulating, mechanically impenetrable one. The neglected problem of matching time-varying MHD fields to vacuum electrodynamic fields across such an interface raises unsuspected problems, because of the possibility of radiated electromagnetic energy to infinity. We have been exploring possible remedies, including a version of MHD that does not neglect the displacement current.

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