



Figure 1: Half a period of oscillation in the case  $\eta = 0.65$ ,  $P = 1$ ,  $\tau = 2000$ ,  $R_e = 100000$ ,  $P_m = 5$ ,  $\beta = 0$  with stress-free velocity boundary condition at  $r = r_o$  and no-slip at  $r = r_i$ . The left column shows contour lines of  $B_r$  at  $r = 1$  and the right column shows contour lines of  $-\frac{\partial g}{\partial \theta}$  at  $r = 0.9$ . The time interval between the snapshots is 0.0308.

Remarks:

e065p1t2r100000m1p4mvlcFD

Phase shift between poloidal and toroidal components of the magnetic field.  $m = 2$