



3D Euler in a 2D Symmetry Plane

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Initial results from new calculations of interacting anti-parallel Euler vortices are presented with the objective of understanding the origins of singular scaling presented by Kerr (1993) and the lack thereof by Hou and Li (2006). Core profiles designed to reproduce the two results are presented, new more robust analysis is proposed, and new criteria for when calculations should be terminated are given. Most of the analysis is on a $512 \times 128 \times 2048$ mesh, with new analysis on a just completed $1024 \times 256 \times 2048$ used to confirm trends. The qualitative conclusions of Kerr (1993) are supported, but most of the proposed scaling laws will have to be modified. Assume enstrophy growth like $\Omega \sim (T_c - t)^{-\gamma_\Omega}$ and vorticity growth like $\|\omega\|_\infty \sim (T_c - t)^{-\gamma}$. Present results would support $\gamma_\Omega \rightarrow 1/4 - 1/2$ and $\gamma > 1$.

When:

17 October 2007
Wednesday, 1:30pm

Where:

Center Green Campus 1
Room 1001