

Abstract Submitted
for the DFD96 Meeting of
The American Physical Society

Sorting Category: 31

Comments on the Existence of Singularities in 3D Euler Flow¹ J.M. GREENE, *General Atomics*, O.N. BORATAV, *University of California, Irvine* — Numerical simulations give some reason for believing that singularities develop in finite time in 3D Euler flow. Standard formal scaling methods for examining such singularities leave a parameter undetermined. Various proposals have been presented^{2,3} for supplying the extra information required to determine its value. On one hand, the energy within the shrinking, accelerating scaling region might be conserved.² On the other hand, the circulations of the various components in this scaling region might be invariant.³ Reasons will be presented for favoring the latter hypothesis. As a consequence we predict that the scaling region will shrink as the square root of the time remaining until the singularity formation.

¹Work partially supported by the National Aeronautics and Space Administration under Grant NAG3-1601 and by the U.S. Department of Energy Grant DE-FG03-95ER54309.

²P. Constantin, *SIAM Rev.* 36, 73 (1994).

³R.E. Pelz, submitted to *Phys. Rev. E*.

Prefer Oral Session
 Prefer Poster Session

J.M. Greene
greenej@gat.gav.com
General Atomics

Date submitted: June 12, 1997

Electronic form version 1.1