

## FAUSTO CATTANEO

### Address:

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University of Chicago,  
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### Education:

Ph.D. Darwin College, University of Cambridge, 1984  
Part III Darwin College, University of Cambridge, 1980  
B.Sc. University of Bristol, 1979

### Appointments:

2007-present Associate Professor, Department of Astronomy and Astrophysics  
and Computations Institute, University of Chicago  
2005-present Computational Scientist, Mathematics and Computer Science Division,  
Argonne National Laboratory  
2005-2007 Associate Professor (part time), Department of Astronomy and Astrophysics,  
University of Chicago  
1999-present Senior Fellow, Computations Institute,  
University of Chicago & Argonne National Laboratory  
1999-2005 Assistant Professor, Department of Mathematics,  
University of Chicago  
1990-1999 Senior Research Associate, Department of Astronomy and Astrophysics,  
University of Chicago  
1988-1990 Senior Research Associate, Joint Institute for Laboratory Astrophysics,  
University of Colorado at Boulder  
1984-1988 Research Associate, Joint Institute for Laboratory Astrophysics,  
University of Colorado at Boulder

### Awards:

2004 Department of Energy, INCITE award  
1996 Alexander Von Humbolt Fellowship

### Biographical Sketch:

Cattaneo completed his undergraduate studies at the University of Bristol (UK) in Physics and Mathematics and received his B.Sc. there with first class honours. He moved to Darwin College, University of Cambridge where he studied for the Part III of the Mathematical tripos which he received in June 1980. He carried out his graduate studies in the Department of Applied Mathematics and Theoretical Physics, University of Cambridge, under the supervision of Dr. M.R.E. Proctor. In 1984 Cattaneo received his Ph.D. and moved to JILA, University of Colorado, where he worked in Prof. J. Toomre group. In the fall of 1990, Cattaneo moved to the Department of Astronomy and Astrophysics at the University of Chicago. He joined the Mathematics Department in the fall of 1999. In the fall of 2005 Cattaneo's appointment was renewed jointly between the Mathematics and Computer Science Division at Argonne National Laboratory and the Department of Astronomy and Astrophysics at the University of Chicago. In the summer of 1998 Dr. Cattaneo became a US citizen (he currently has dual nationality with Italy). Dr. Cattaneo is married and has one child.

### Main Areas of Research:

Dr. Cattaneo's is interested in the theory of strongly dissipative nonlinear systems. His work has included analytical and numerical studies on the theory of hydrodynamic and hydromagnetic turbulence, studies of the nonlinear development of instabilities in stratified, and in magnetized fluids. He is interested in homogenization theory with particular emphasis on the problem of turbulent transport of scalars (both passive and active) and of magnetic fields, and the possible extension of turbulent transport theory to reacting flows. He has carried out several studies in dynamo theory, with particular emphasis on its generalizations to fully nonlinear regimes, and their possible applications to the problem of the origin of cosmic magnetic fields. Currently, Dr. Cattaneo is working on the hydro-magnetic stability of accretion discs and cylindrical Couette flows and the problem of turbulent angular momentum transport in rotating systems. He has also done extensive work in the theory of compressible flows, the theory of convection in strongly stratified layers and the coupling between compressible turbulence and acoustic waves.

Dr. Cattaneo is also interested in numerical modeling and high performance computing. Specifically the development and implementation of efficient algorithms and computational environments for large scale scientific computing.