CURRICULUM VITAE——————DAVID CHRISTOPHER COLLINS

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RESEARCH INTERESTS

Computational fluid dynamics

Computational magnetohydrodynamics

High performance computing

Supersonic turbulence

Magnetized turbulence

Gravitational collapse in turbulent clouds

Protostellar core formation and properties

Mathematics, Physics and Astronomy Education

EMPLOYMENT

Postdoctoral Scholar, Stanford University — 2009-present
Advisor: Michael L. Norman
Co-Advisor: Paolo Padoan

Graduate Research Assistant — 2002-2009
Advisor: Michael L. Norman
Co-Advisor: Paolo Padoan

Teaching Assistant Coordinator, UCSD — 2002-2005

Teaching Assistant, UCSD — 2002-2005
Physics 1A: Mechanics
Physics 1B: Electricity and Magnetism, Thermal Physics
Physics 1C: Optics, Neuclear Physics, Modern Physics

EDUCATION

University of California San Diego — PhD., Physics, 2009
Thesis: *Star Formation with Adaptive Mesh Refinement and Magnetohydrodynamics*
Advisor: Michael L. Norman
Co-Advisor: Paolo Padoan

University of California San Diego — M.S., Physics, 2004

University of Cincinnati — B.S., Physics, 2001

University of Cincinnati — B.A., Mathematics, 2001

PUBLICATIONS

Collins, D.C., Xu, H., Norman, M.L., Li,H., & Li., S *Cosmological AMR MHD with Enzo, accepted for publication in the Astrophysical Journal Suppliment*

Xu, Hao; Li, Hui; Collins, David C.; Li, Shengtai; Norman, Michael L. *Turbulence and Dynamo in Galaxy Cluster Medium: Implications on the Origin of Cluster Magnetic Fields*, Astrophysical Journal, 2009, 298

Xu, H., OShea, B. W., Collins, D. C., & Norman, M.L. *The Biermann Battery in Cosmological MHD Simulations of Population III Star Formation*, Astrophysical Journal Letters, 2008, 688, L57

Xu, H., Li., H, Collins, D. C., Li, S., & Norman, *M. L. Formation of X-Ray Cavities by the Magnetically Dominated Jet-Lobe System in a Galaxy Cluster*, Astrophysical Journal Letters, 2008, 681, L61

COMPUTER EXPERIENCE

Languages C,C++, Fortran, shell scripting, IDL, Python, Javascript, HTML, CSS, AJAX

Platforms Linux, Unix (AIX, Solaris), Macintosh OS X

Other tools MPI Parallel library, Totalview parallel debugger, HDF5 data format, parallel computing architectures

Algorithms Computational fluid dynamics and MHD, adaptive mesh refinement, general numerical integration