



Center for Scientific Computation And Mathematical Modeling

University of Maryland, College Park



Program Announcement

Matter and Electromagnetic Fields in Strong Gravity

August 24-28, 2009

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SCIENTIFIC BACKGROUND

The past 15 years has witnessed a revolution in the astrophysical study of black holes. Modern radio and X-ray observations are allowing us to see phenomena at the very edge of the event horizons of both stellar-mass and supermassive black holes. At the same time, the realization that accretion is driven by MHD turbulence has led to dramatic progress in our theoretical understanding and modeling of black hole accretion disks. We can now start to address, from both an observational and theoretical stance, how matter and electromagnetic fields interact with the strong gravitational field of a black hole. Furthermore, we are assembling the tools to understand both the spacetime structure and astrophysical phenomenology associated with merging supermassive black holes. These are important endeavors if we are to prepare for the future generation of radio, X-ray and gravitational radiation observatories.

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*CSCAMM is part of the College of Computer,
Mathematical and Physical Sciences*



Partial funding is provided by the Departments of Astronomy and Physics and by the CMPS Dean's Office at the University of Maryland, and by NASA Goddard Center.