BOSTON UNIVERSITY

ASTROPHYSICS
SEMINAR SERIES

"The Event Horizon Telescope: Observing Black Holes with Schwarzschild Radius Resolution"

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Monday, September 10, 2012
Refreshments at 3:30pm in CAS 500
Talk begins at 4:00pm in CAS 502

Abstract:
It is now almost certain that at the center of our Milky Way Galaxy lies a super massive black hole - 4 million times more massive than our Sun. Because of its proximity to Earth, this object, known as Sagittarius A*, presents astronomers with the best opportunity in the Universe to spatially resolve and image a black hole Event Horizon. To do this requires using Very Long Baseline Interferometry (VLBI), the technique whereby radio telescopes around the world are linked together in a Global phased array. Very short wavelength VLBI observations have now confirmed structure on ~4 Schwarzschild radius scales within SgrA*, and have revealed time variability in this source on the same spatial scales. For the much more massive (6 billion solar mass) black hole powering the relativistic jet in M87, similarly compact structures have been detected. I will describe the instrumentation efforts that enable these observations, discuss what current and future VLBI observations can tell us about these super-massive black holes, and describe plans for assembling a Global submm-VLBI Event Horizon Telescope.