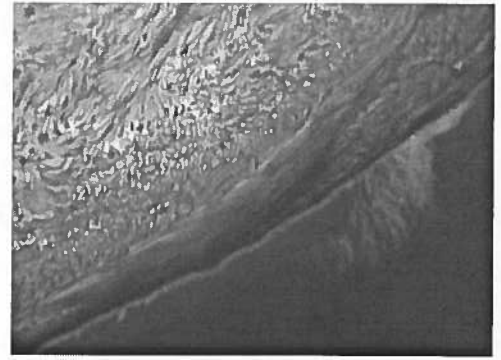




WEEKLY CALENDAR

7 November 2005

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General Seminar

3:40PM / Thursday, 10 November 2005 / Room 109, Nicholson Hall

Host: Dr. Geoff Clayton

[Refreshments served at 3:15 PM in Room 229, Nicholson Hall]

The Light Echo Around V838 Monocerotis

Howard Bond, PhD
Space Telescope Science Institute (STScI)
Baltimore, MD

A "light echo" is one of the rarest and most beautiful phenomena in astronomy. The most spectacular light echo in history is occurring now around the previously unknown star V838 Monocerotis, and is being imaged regularly by the Hubble Space Telescope.

A light echo is created when light from a sudden stellar brightening spreads out into space and illuminates nearby interstellar dust. Because of the detour that the light takes in going out to the dust, scattering off it, and then traveling to the Earth, the light arrives months or years after the light from the star itself.

The light echo around V838 Mon, which had a sudden outburst in early 2002, leads to direct geometric determinations of the distance to the star and a fully 3-dimensional map of the dust distribution around it, both of these for the first time for any star in the Milky Way. The resulting distance shows that V838 Mon was temporarily one of the brightest stars in the entire Milky Way, and moreover its outburst was of a type not seen before, thus posing a severe puzzle to stellar theoreticians.

Perhaps more important to the non-specialist, however, the images of the light echo are among the most stunning obtained to date by the Hubble Space Telescope.

Publications:

"Optically controlled delays for broadband pulses." Q.Q. Sun, Y.V. Rostovtsev, J.P. Dowling, M.O. Scully, M.S. Zubairy. *Physical Review A* 72 (3): Art. No. 031802 (Sept. 2005).

"Exploiting the Quantum Zeno effect to beat photon loss in linear optical quantum information processors." F.M. Spedalieri, H. Lee, M. Florescu, K.T. Kapale, U. Yurtsever, J.P. Dowling. *Optics Communications* 254 (4-6): 374-379 (Oct. 2005).

"Vortex Phase Qubit: Generating Arbitrary, Counterrotating, Coherent Superpositions in Bose-Einstein Condensates via Optical Angular Momentum Beams." K. T. Kapale and J.P. Dowling, *Phys. Rev. Lett.* 95, 173601 (2005)

Welcome to:

Dr. Bjoern Zimmerman, a Postdoctoral Researcher with Dr. Kenneth Schafer.
Dr. Zimmerman is located in Room 218-B, Ext. 8-0554.