Subject: abstact for attending the conference in Mexico
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M.E.

Here is abstract of my poster to attend the conference in Mexico (below) and point of contract is "Dra. Jane Arthur" who you can reach bubbles@astrosmo.unam.mx

Jeonghee

Title: Supernova Remnants and Molecular clouds

Authors: Jeonghee Rho, William Reach and Tom Jarrett

Supernovae are believed to be the source of local kinetic energy of the interstellar medium, keeping the gas in motion and returning material from dense molecular clouds into the more diffuse interstellar medium and the galactic halo. Strong shock waves traversing the interstellar clouds compress, heat, chemically alter the medium, and trigger star formation.

We review recent Infrared Space Observatory (ISO), near-infrared and millimeter observations of a number of supernova remnants which are interacting with clouds. Atomic fine-structure lines of [C II], [N II], [N III, [O I], [O II], [O III], [Si II], [P II], [Fe II], and two lines of shocked molecular hydrogen S(3) and S(9), were detected for three remnants using ISO. Virtually all existing atomic lines are detected. No single shock model can account for all of the observed lines. To explain the detected lines requires both moderate (10^{2} cm^{-3}) and high ($\sim 10^{4}$ cm^{-3}) pre-shock densities, with the moderate density shocks producing the ionic lines and the high density shocks producing the molecular lines. The inferred high density and warm temperatures are from heated dense clumps due to supernova shocks, and the principal coolants of radiative shocks are [O I] 63um and [Si II] 34.8um lines. Shock-excited far-infrared emission of molecular hydrogen, OH, and CO are also detected, which is consistent with collisional excitation in warm, very dense (2x10^{5} cm^{-3}) gas.

We also took high resolution images of the significance coolants molecular hydrogen and [Fe II] using ground-based observations, which reveal how shocks develop around clouds. We found strong correlation between broad CO and shocked molecular hydrogen lines. Displacements between molecular hydrogen and [Fe II] structures are often observed, showing that a single primary shock is present on large scales. We also discover broad millimeter lines from a couple of SNRs, which are direct evidence of the interaction between the SN shocks and molecular clouds. We will discuss the possibility of star formation induced by supernova shocks when SN shocks interact with clouds.