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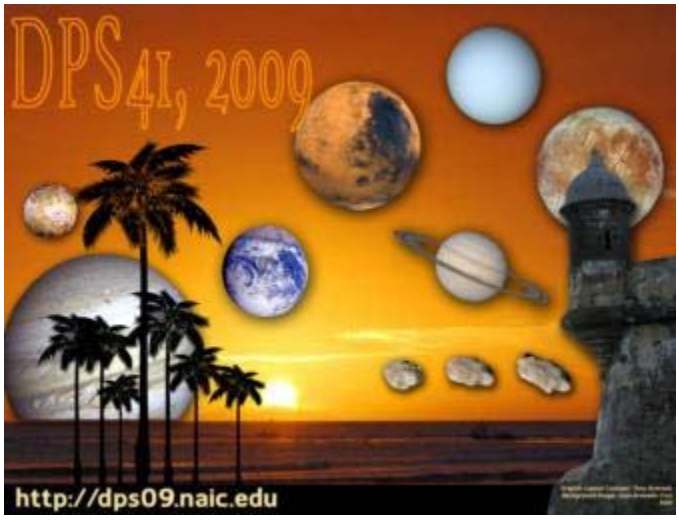

Presentation Abstract

Title **Production of Liquid Water by Impacts onto Icy Bodies**

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Abstract Melting of H2O ice during planetary impact events is a widespread phenomenon. As relatively low shock pressures are required to melt ice, large volumes of liquid may be produced. Depending on the size of the event, the liquid water may persist for long time scales. However, knowledge of the volume and spatial distribution of liquid water produced from an impact is necessary to draw conclusions about the longevity of the liquid water. Using the new 5-phase model equation of state for H2O (Stewart & Senft, MAPS, 2008) in CTH hydrocode simulations, we calculate the volume of ice that is melted for a wide range of impact conditions and derive scaling laws as a function of initial temperature, projectile size and impact velocity. We also consider impacts onto mixtures of ice and silicates. Using new experimental results for how energy is partitioned in a shocked ice-quartz mixture (Kraus et al., EPSL, submitted), we determine the maximum amount of liquid water produced in ice-silicate mixtures. Interestingly, there is a range of silicate to ice ratios that will result in a greater amount of liquid water production than if the same impact occurred onto a body of pure ice.
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