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Acoustic Wave Dynamics in the Post-Bounce Phase of Core Collapse Supernovae KEITH HEYWARD, North Carolina State University — How a core collapse supernova successfully "explodes" is only partially understood. Computer models indicate that the accretion shock wave stalls around 200 km from the newly formed proto-neutron star. Despite the abundance of energy from the gravitational collapse and theories predicting how this energy might reenergize the accretion shock, simulations still fail to produce a robust explosion. Hydrodynamic models play an important role in this analysis. Using hydrodynamic modeling, I will describe the nature of acoustic waves driven by the proto-neutron star and the dissipation of thermal energy by these waves into the critical "Gain Region." Using the criteria for a successful explosion laid out by Janka in 2001, I will then describe the impact that this energy has on a successful restart of the stalled accretion shock.

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