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Effects of Time-dependent Heat Sources on Neutron Star Crust Cooling AUSTIN SMITH, HEIDE DOSS, Pt Loma Nazarene Univ — The cooling of neutron star crusts can give insights to the interior thermal mechanics of the neutron star. Using dStar[1] and the neutron star cooling simulation code NSCool, a variable mass is accreted onto different hypothetical neutron stars. Previous accretion simulations have accreted a constant mass over a long epoch, while in this research we investigate the effects of different accreting mass distributions and focus in on a periodic gaussian distribution, with a finer time epoch. The simulations produce plots of mass distributions as well as effective temperature and luminosity as viewed by a distant observer over time. The effects on the quiescent cooling curves due to the time-dependent distribution shapes of accreted mass are presented and comparisons are made with some observational data. [1]Brown, E. F. 2015, Astrophysics Source Code Library, ascl:1505.034

Austin Smith
Pt Loma Nazarene Univ

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