



Rainbows, rays and resonances: gravitational scattering by a compact body

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I will describe the scattering and focussing of planar waves in the gravitational field of a compact body such as a neutron star. Rays that pass through the body form a caustic, creating a rainbow in the scattering cross section. I will show that the spectrum of Regge poles for this system is sensitive to the surface and internal structure of the body. I will also explore some similarities with scattering in other contexts: Mie scattering by a homogeneous sphere, scattering by a nuclear potential, and the focussing of tsunamis by submerged islands.