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Atmospheres and radiating surfaces of neutron stars with strong magnetic fields

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Modern space telescopes have provided a wealth of valuable information on thermal radiation of neutron stars which, when properly interpreted, can elucidate the physics of superdense matter in the interior of these stars. Strong magnetic fields profoundly change the equation of state and radiative opacities in the surface layers of neutron stars and thus affect their thermal spectra. Theory of these effects is reviewed in the talk, including the conventional models of deep (semi-infinite) atmospheres, models of “naked” neutron stars with condensed radiative surfaces, and “thin” (finite) atmosphere models, with examples of application of the theory to tentative interpretations of some observed neutron-star thermal spectra.

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