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Fast radio bursts from magnetars

Thursday, December 14, 2023 2:30 PM (25 minutes)

Active neutron stars generate kHz magnetospheric waves of two types: Alfvén and magnetosonic. As the waves propagate away from the star, they become strongly nonlinear and dissipative. Alfvén waves trigger magnetic reconnection and ejection of relativistic plasmoids. Magnetosonic waves form monster radiative shocks inside the magnetosphere and then launch ultrarelativistic blast waves propagating far outside the light cylinder. These sudden powerful outflows are accompanied by X-ray bursts and fast radio bursts.

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