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Thermonuclear X-ray bursts with NICER

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Type-I X-ray bursts are powered by the unstable thermonuclear burning of accreted hydrogen and helium material on the surface of a neutron star (NS) in low-mass X-ray binary systems. They typically last for tens to hundreds of seconds, depending on the fuel composition. Among the observed bursts, approximately 20% of them are powerful enough to lift the NS photosphere tens to hundreds of kilometers above the surface. Studying these events provides crucial information about nuclear processes, the interaction between the burst and accretion disk, and constraints on NS physical parameters such as spin and compactness. Thanks to the unprecedented timing and spectral sensitivity of NICER (Neutron Star Interior Composition Explorer) in the soft X-ray range, thermonuclear X-ray bursts from several sources have been detected in the last seven years. This talk will highlight these interesting findings observed by NICER.

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