Title:	Evidence of hard power-law spectral cutoff and disc reflection features from the X-ray transient XTE J1739–285
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Abstract:	We report on the nearly simultaneous NICER and NuSTAR observations of the known X-ray transient XTE J1739–285. These observations provide the first sensitive hard X-ray spectrum of this neutron star X-ray transient. The source was observed on 2020 February 19 in the hard spectral state with a luminosity of 0.007 of the Eddington limit. The broadband 1−70 keV NICER and NuSTAR observation clearly detects a cutoff of the hard spectral component around 34−40 keV when the continuum is fitted by a soft thermal component and a hard power-law component. This feature has been detected for the first time in this source. Moreover, the spectrum shows evidence for disc reflection – a relativistically broadened Fe K α line around 5−8 keV and a Compton hump in the 10−20 keV energy band. The accretion disc reflection features have not been identified before from this source. Through accretion disc reflection modelling, we constrain the radius of the inner disc to be Rin=3.1+1.8−0.5RISCO for the first time. In addition, we find a low inclination, i ∼ 33°. Assuming the magnetosphere is responsible for such truncation of the inner accretion disc above the stellar surface, we establish an upper limit of 6.2 × 108 G on the magnetic field at the poles.
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