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eROSITA observations of the Narrow-Line Seyfert 1 Galaxy 1H 0707-495: Discovery of an ultra-soft flaring X-ray light curve

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One of the most prominent AGNs, the ultrasoft Narrow-Line Seyfert 1 Galaxy 1H 0707-495, has been observed with eROSITA as one of the first CAL/PV observations on October 13, 2019 for about 60.000 seconds. 1H 0707-495 is a highly variable AGN, with a complex, steep X-ray spectrum, which has been the subject of intense study with XMM- Newton in the past. Large amplitude variability with a factor of more than 50 has been detected in the eROSITA light curve. The soft band is dominating the variability, while in the hard band the variability is much less extreme. No significant variability has been detected in the UV in the XMM-Newton OM observations, indicating that the primary source for the soft X-ray variability is the soft X-ray excess itself, originating from the innermost regions around the central black hole. 1H 0707-495 entered the lowest hard flux state of all 20 years of XMM-Newton observations. In the eRASS1 observations taken in April 2020 the X-ray light curve is still ultrasoft, with an increase in soft and hard band count rates going back to previously observed flux states. A changing partial coverer spectral model with relativistic reflection provides a physical interpretation which is also in agreement with the observed light curve.

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