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## EP241021A: a cosmic explosion with a complex structure from a massive progenitor

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EP241021a belongs to the class of X-Ray Flashes (XRFs), fast X-ray transients discovered by the BeppoSAX satellite. Diverse evidence indicates that XRFs are connected to Gamma Ray Bursts (GRBs) and likely represent their softer analogues. Several models have been proposed to explain the observed properties of XRFs, mostly in the context of collapsar scenario, like off-axis GRBs and baryon-loaded explosions (cocoon). Here we present the results of our extensive campaign in radio (uGMRT, ATCA, e-MERLIN, ALMA), but also in optical and in X-rays, of the afterglow of EP241021a. The afterglow is characterized by multiple components, which represent the imprints of the interaction of a jet with the complex environment of the pre-existing progenitor, that is likely shaping its structure. Moreover, the radio emission clearly shows the presence of a structured cocoon, with a mildly relativistic and a non-relativistic component. The radio spectral coverage from 1 to ~200 GHz was fundamental to constrain the structure of this soft X-ray transient, that, after all, revealed to be not so different from a Gamma Ray Burst indeed.

### Topics

Transients & GW follow-up

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