

A Luminous Relativistic Tidal Disruption Event Discovered by the ZTF Optical Survey

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Tidal disruption events (TDEs) are bursts of electromagnetic energy released when supermassive black holes (SMBHs) at the centers of galaxies violently disrupt a star that passes too close. TDEs provide a new window to study accretion onto SMBHs and may be associated with high energy neutrinos. In some rare cases, this accretion leads to launching of a relativistic jet, but the necessary conditions are not fully understood. The best studied jetted TDE to date is Swift J1644+57, which was detected in gamma-rays more than a decade ago, but was too obscured by dust to be seen at optical wavelengths. I will present the discovery of AT2022cmc, a rapidly fading source at redshift $z \sim 1.2$ found in Zwicky Transient Facility survey data, whose unique light curve transitioned into a luminous plateau within days. Observations of an exceptionally bright counterpart at X-ray, sub-millimeter, and radio wavelengths supported the interpretation of AT2022cmc as a rare jetted TDE containing a synchrotron afterglow, likely launched by a rapidly spinning SMBH.

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