

A Dust-Enshrouded Tidal Disruption Event in a Luminous Infrared Galaxy

S. Mattila

Department of Physics and Astronomy, University of Turku, Finland
email: sepmat@utu.fi

Abstract. This paper presented the discovery of an energetic nuclear transient from near-infrared monitoring of nearby starburst and luminous infrared galaxies. The transient radiated at least $1.5E+52$ erg in the infrared but remained elusive at optical and X-ray wavelengths. We interpret its properties as arising from a stellar tidal disruption event (TDE) close to a supermassive black hole. Much of its emission must have been reprocessed by dense gas and re-radiated at infrared wavelengths by dust, suggesting a way for reducing the tension between theoretical luminosity predictions and observations of TDEs. Such events are not detectable by optical, UV or soft X-ray observations, and might represent just the tip of the iceberg of a missed TDE population in the local Universe. That population could be more numerous at higher redshifts where luminous infrared galaxies are more common.

Keywords. Radio continuum: transients, radio continuum: stars, surveys
