

Relativistic Jets from Tidal Disruption Events

Monday, 12 June 2023 11:00 (30 minutes)

Sw 1644 was one of the most surprising tidal disruption events (TDEs). Its prompt emission in soft gamma-rays triggered Swift. Later this was followed by X-ray and Radio afterglows. The energy implied by the radio afterglow increased by a factor of 10 over a period of a few hundred days, reaching an ultimate value of a few times 10^{52} erg. This is much higher than in other TDEs. Recently several TDEs have shown a delayed radio emission that began a few years after the event. I show that both events can be explained as relativistic jets viewed off-axis. This requires an initially relativistic jet with 10^{53} erg, making those events among the most energetic transient events. I will speculate on the origin of these events, as compared with regular TDEs that are significantly weaker, and on implications to other phenomena and in particular to the origin of Ultra High Energy Cosmic Rays.

Presenter: PIRAN, Tsvi (The Hebrew University)

Session Classification: Monday morning session