

Time-domain astrophysics of galactic nuclei in radio to submillimeter

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I will review ideas as to how a joint monitoring program at radio to submillimeter wavelengths may be used to study the relativistic jet formation and circumnuclear environment of supermassive black holes. At least some tidal disruption events (TDE) of (sub-)stellar objects around black holes form relativistic jets. Such a jet can first be detected in (sub)millimeter and only gradually become optically thin and observable at longer wavelengths. The jet evolution depends strongly on the density structure of the circumnuclear gas, including the accretion flow, while its associated magnetic field can be traced by the Faraday's rotation of polarization as a function of time. I will use the nearest known TDE, IGR J12580+0134, in NGC 4845 ($d = 17$ Mpc) as an example to illustrate both the existing feasibility and the potential power of such a (sub)millimeter to radio follow-up program.

Author: WANG, Q. Daniel (University of Massachusetts)

Presenter: WANG, Q. Daniel (University of Massachusetts)