ID de Contribution: **14** Type: **Non spécifié**

Radiative models for rapid blazar flares - a quick overview

jeudi 5 février 2026 09:00 (30 minutes)

When using the light curves of rapid blazar flares for searches of propagation effects, it is important to understand the
intrinsic temporal and spectral signatures introduced by the underlying particle acceleration and emission processes
producing those flares. Unfortunately, the nature of these processes is not well known. Most scenarios place the emission
region inside the relativistic jet, but the black hole magnetosphere might be an alternative site to explain the most rapid flares.
Particle acceleration can occur in shocks or turbulences, but might also be due to magnetic reconnection, depending on the
physical conditions of the emission region. Possibly there is more than a single process at play behind the variety of observed
flare shapes and their different time scales.
I will provide a short overview of the main types of models that try to explain rapid flare emission in blazars, with a focus on the
predictions of light-curve shapes and intrinsic time delays.

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Classification de Session: AGN modelling and observation