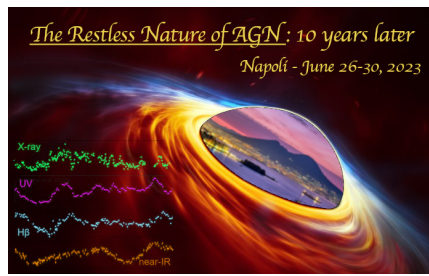


## The restless nature of AGN: 10 years later



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# What can we learn from correlated radio and X-ray variability?

*Monday, 26 June 2023 15:30 (15)*

High frequency radio emission may originate from scales as small as the innermost accretion disk, and can thus probe directly the relativistic electrons and the magnetic fields in the coronal gas of radio quiet AGN.

I will present simulations of the time evolution of the distribution functions of relativistic electrons following their injection due to a coronal reconnection event. The electrons cool through Compton scattering, producing a pulse of X-ray emission, and through synchrotron emission, producing a pulse of high frequency radio emission. Future simultaneous monitoring of X-ray and mm emission may allow to probe directly the coronal heating and cooling mechanisms.

I will also briefly point out the false detections of correlated variability when two red light curves are correlated, as we found in a recent study of simultaneous radio and X-ray observation of three AGN. I will also describe how these biases can be minimised in future studies.

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**Session Classification** : X-ray/UV/optical/IR correlated variability