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S C I E N C E D A T A C E N T R E

Centre attaché à l'Observatoire de Genève



UNIVERSITÉ DE GENÈVE

ASTROPHYSICS SEMINAR



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Coronae in the Coronet Simultaneous X-ray to radio multi-wavelength observations of a young stellar cluster

Jan Forbrich

Max-Planck-Institut für Radioastronomie & Uni Jena

Abstract. Multi-wavelength monitoring can provide important information about physical processes in young stellar objects such as the relation between accretion processes and X-ray emission. While coronal processes should mainly cause variations in the X-ray and radio bands, accretion processes may be traced by time-correlated variability in the X-ray and optical/infrared bands. We present the first simultaneous X-ray, radio, near-infrared, and optical multi-wavelength monitoring campaign succeeding in detecting X-ray to radio variability in extremely young objects like class I and class 0 protostars. Our target is the compact Coronet cluster in the Corona Australis star-forming region, harbouring at least one class 0 protostar, several class I objects, numerous T Tauri stars, and a few Herbig AeBe stars. A core sample of seven objects was detected simultaneously in the X-ray, radio, and optical/infrared bands. While most of these sources exhibit clear variability in the X-ray regime and several display also optical/infrared variability, none of them shows significant radio variability on the timescales probed. We also do not find any case of clearly time-correlated optical/infrared and X-ray variability. This suggests that there is no direct link between the X-ray and optical/infrared emission, supporting the notion that accretion is not an important source for the X-ray emission of these YSOs. Combining our Chandra data with previous observations results in one of the most sensitive X-ray observations yet of a star-forming region allowing a virtually complete census of YSOs in the Coronet region.

Additional Information

The seminars are given in the ISDC "Pavillon" building
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