Hard X-ray emission from IC 443: the BeppoSAX view

A.Preite-Martinez, M.Feroci (CNR/IAS, Rome, I), R.G.Strom (NFRA, Dwingeloo, NL), T.Mineo (CNR/IFCAI, Palermo,I)

Our BeppoSAX observations of IC 443 were primarily directed toward isolating and studying its previously known hard component, thereby to test the hypothesis that this is direct evidence for very energetic ($\simeq$ 100 TeV) cosmic rays. Although our analysis is at an early stage, it was immediately obvious that we have, with the BeppoSAX/PDS, detected a very hard (from 14 to $>$ 30 keV) component which is almost certainly the counterpart of the EGRET γ-ray source 2EG J0618+2234. This object is offset from the prominent soft thermal emission in IC 443, and is probably associated with at least one of the two hard (5 – 10 keV) hot spots detected by the BeppoSAX/MECS. Both the hot spots and the 2EG source appear to be evidence for energetic cosmic rays produced where the SNR shock is interacting with a dense molecular cloud.