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SCIENCE DATA CENTRE

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UNIVERSITÉ DE GENÈVE

## ASTROPHYSICS SEMINAR



Friday, 30 April 2004 at 11:00

# On the links between hard X-rays and very high energy gamma-rays from different galactic and extragalactic source populations

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**Abstract.** It is well recognized that within the inverse-Compton models of very high energy gamma-rays of objects like supernova remnants, plerions, blazars, etc., one should expect strong synchrotron X-radiation produced by the same population of (directly accelerated) multi-TeV electrons. I will show that strong TeV/X-ray correlations are expected also in hadronic models of TeV gamma-ray emission, the X-rays being result of synchrotron radiation of secondary electrons produced either at decays of charged pions or due to internal absorption of gamma-rays at interactions with ambient photon fields. Because of very short cooling time of these electrons (compared to the typical dynamical timescales), the  $\pi^0$ -decay gamma-rays are accompanied, almost simultaneously, with hard X-rays. In many cases the synchrotron X-ray emission of "hadronic" origin could extend to 100 keV or even beyond. I will demonstrate the importance of this effect for shell type SNRs, AGN and clusters of galaxies, and suggest an observational strategy for search for cosmic PeVatrons with the INTEGRAL mission.

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### Additional Information

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The seminars are given in the ISDC "Pavillon" building  
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