

TeV Particle Astrophysics III, Istituto Veneto, Venice, Italy 27-31 August 2007

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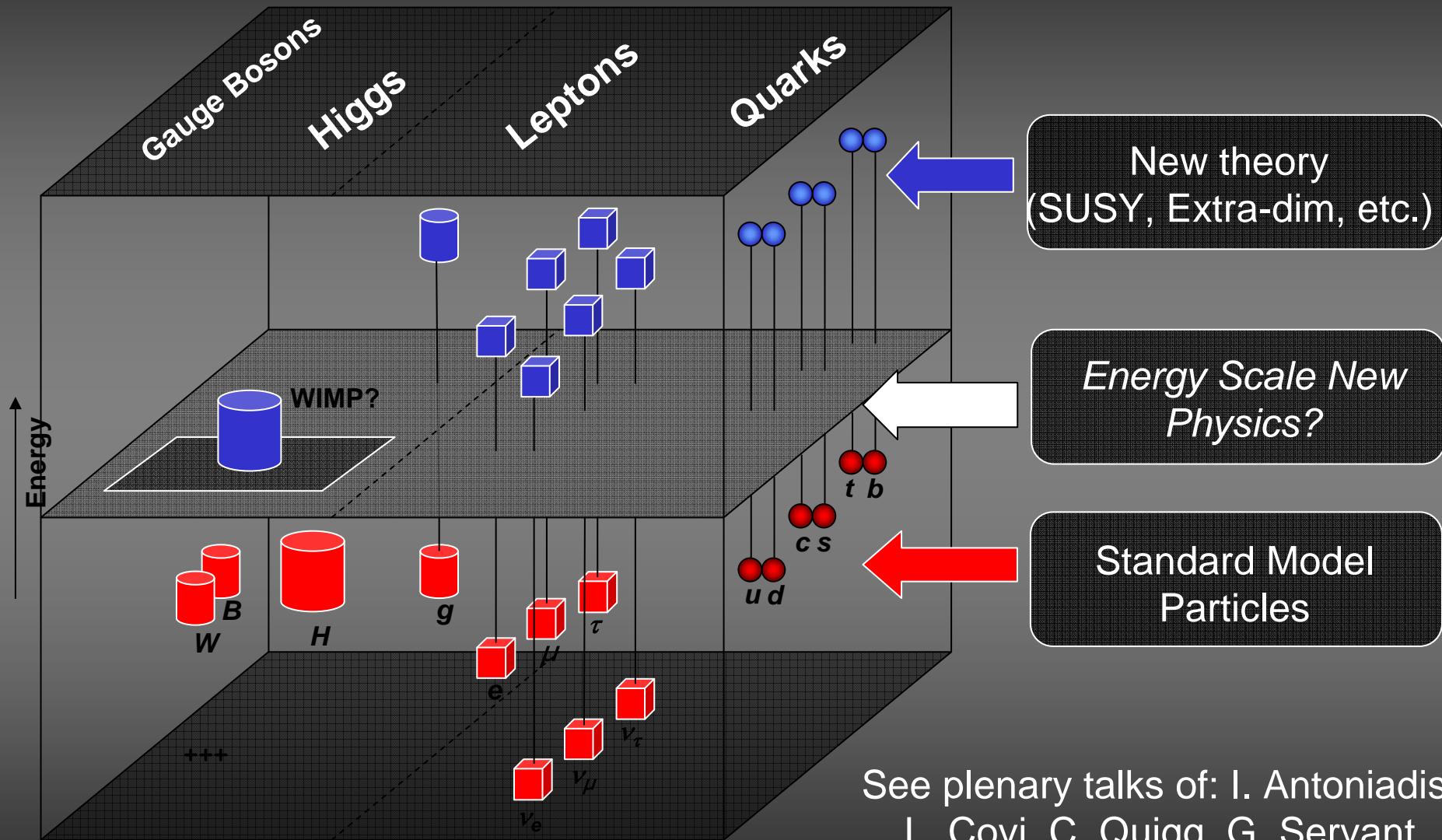
TOPICS

- **New Physics at LHC**
 - TeV Particle Physics
 - Connections with Cosmology
- **TeV Gamma-ray Astrophysics**
 - Theoretical aspects
 - Ground-Based Experiments (*ARGO-YBJ*, *CANGAROO*, *HESS*, *MAGIC*, *Milagro*, *STACEE*, *TACTIC*, *Tibet*, *VERITAS*): latest results and future plans
 - Upcoming Space Telescope *GLAST*
- **Direct and Indirect Dark Matter Searches**
 - Update on direct searches
 - New strategies of indirect detection
 - First *PAMELA* results
- **Neutrino Telescopes**
 - *Amanda*, *Antares*, *Baikal*, *IceCube*, *Nemo*, *Nestor*, *KM3NeT*
- **Ultra-High Energy Cosmic Rays**
 - Latest *AUGER* results
 - Acceleration and propagation

<http://www.pd.infn.it/TeV/index.html>



What (if any) is the energy scale of New Physics?

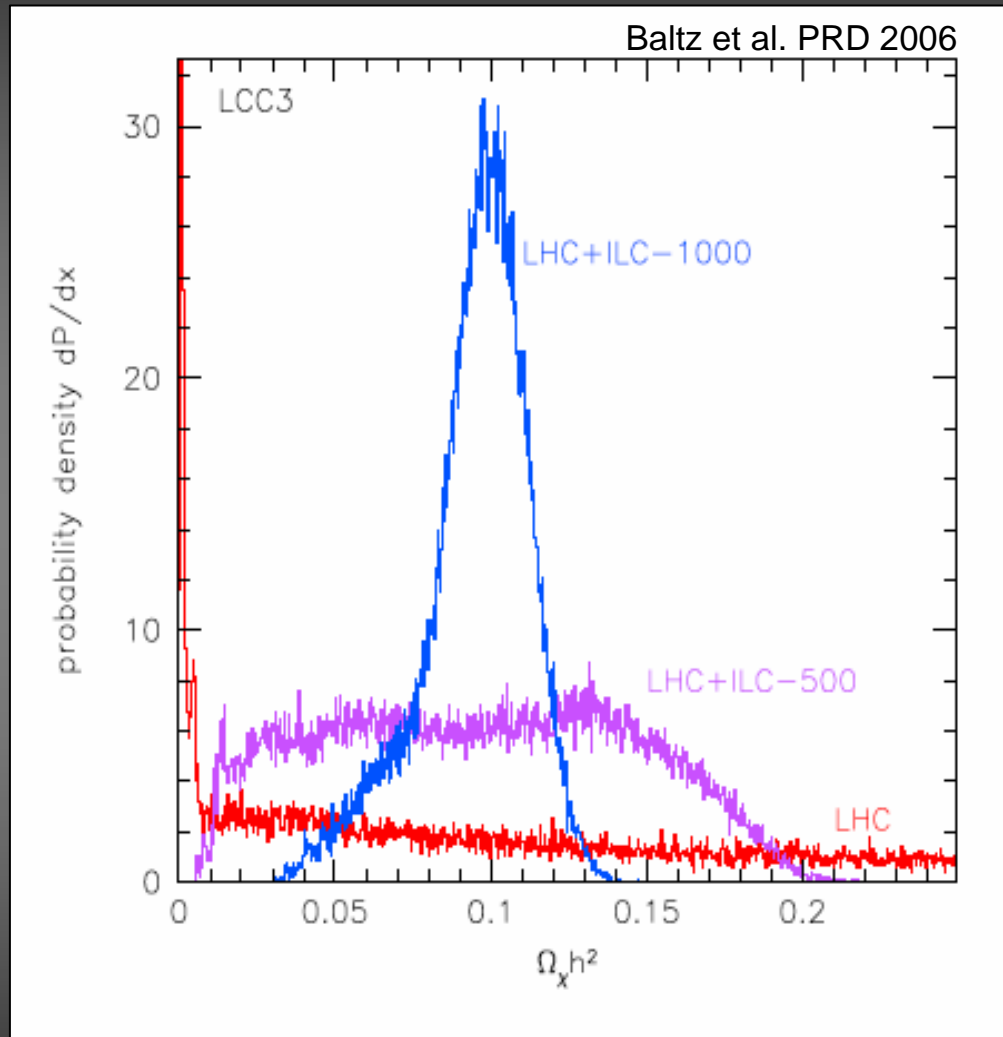


See plenary talks of: I. Antoniadis, L. Covi, C. Quigg, G. Servant
Parallel Session n.5 (Baltz & Servant)

LHC is about to start!

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

But LHC will not necessarily provide all the answers!!



Even if SUSY particles are discovered, it will be challenging to determine $\Omega_\chi h^2$ with good accuracy!

	Ωh^2	LHC
LCC1	0.192	7.2%
LCC2	0.109	82.%
LCC3	0.101	167%
LCC4	0.114	405%

Need particle astrophysics (direct/indirect) experiments to prove that new particles = DM !!

See plenary talk of M. Battaglia

DM searches rely upon our understanding of its distribution on large and small-scales

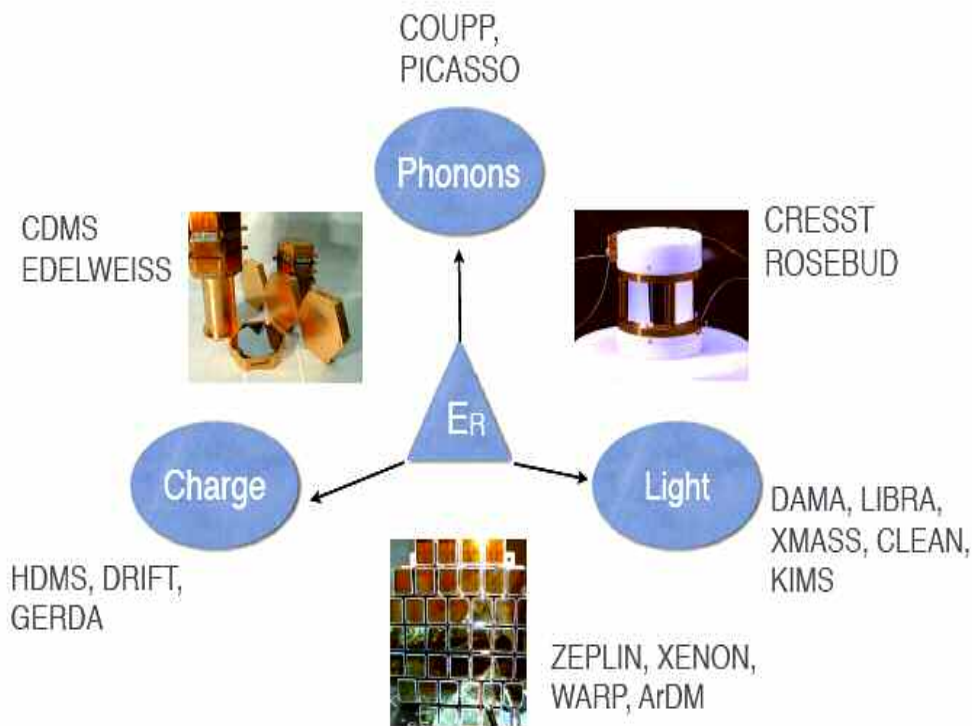
QuickTime™ and a
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Diemand et al. 2006

See plenary talk of A. Green and parallel session n. 6
(convenors J. Diemand and J. Taylor)

Direct detection: Principle and Status

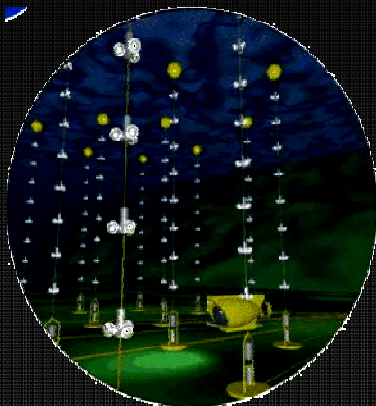
Detection of recoil energy via ionization (charges), scintillation (light) and heat (phonons)!



Laura Baudis 2007

See plenary talks of G. Chardin and A. Rubbia and parallel session n. 7 (convenors L. Baudis and L. Kaufmann)

Indirect Dark Matter Searches



Indirect Detection

Gamma-ray telescopes

- Ground Based (CANGAROO, HESS, MAGIC, MILAGRO, VERITAS)
- Space satellite GLAST
- Plans for a future Cherenkov Telescope Array

Neutrino Telescopes

- Amanda, IceCube
- Antares, Nemo, Nestor
- Km3

Anti-matter satellites

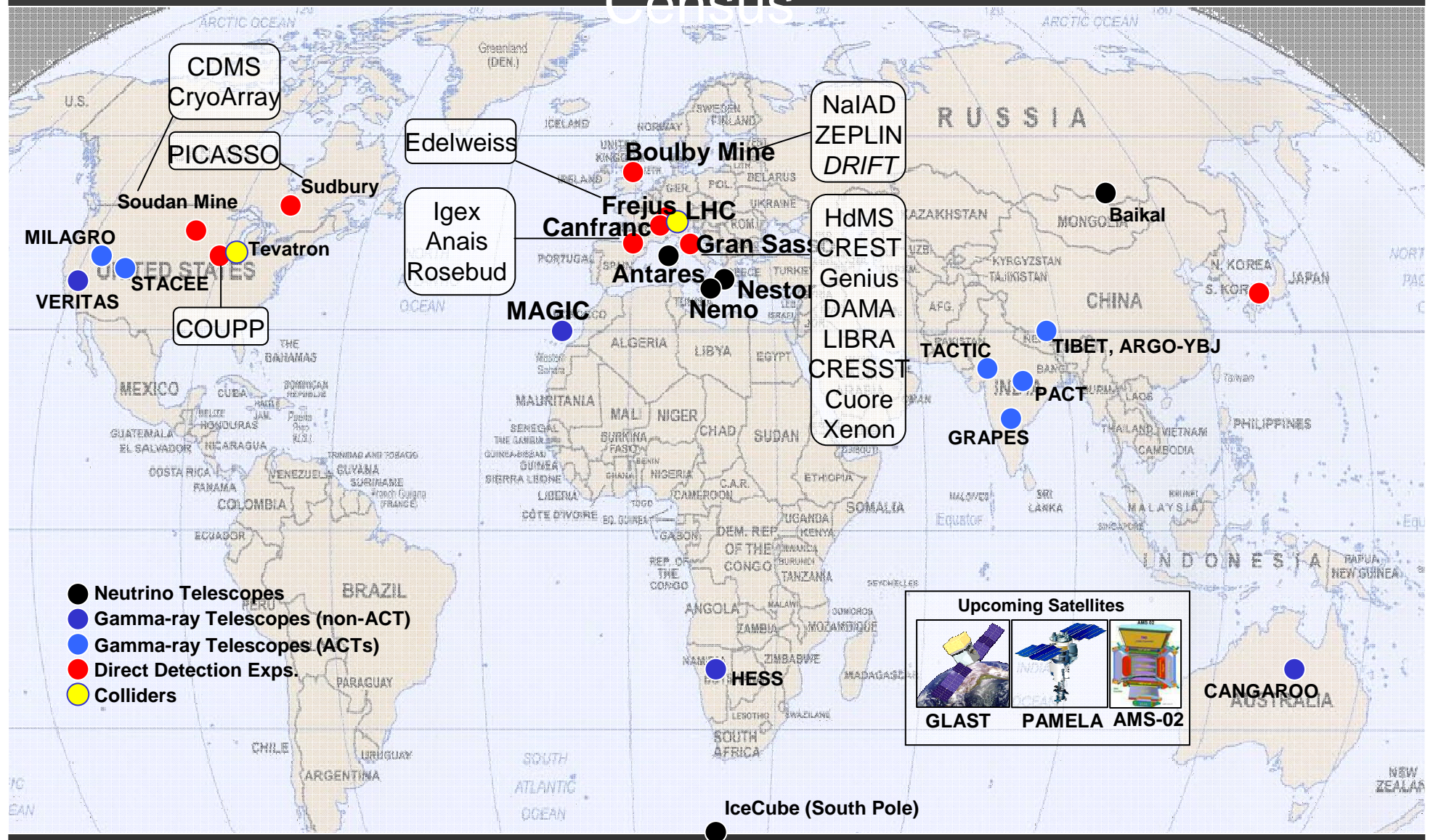
- PAMELA
- AMS-02

Other

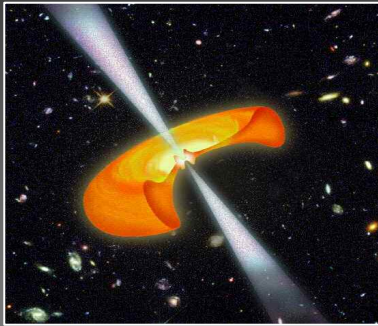
- Synchrotron Emission
- SZ effect
- Effect on Stars

See plenary talk of L. Bergstrom and parallel session 3 (convenors D. Hooper and N. Fornengo)

Dark Matter - related experiments: 2007 World Consensus



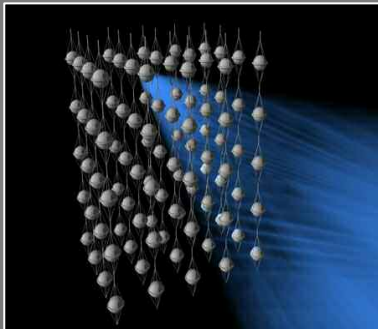
High and Ultra-high energy



Gamma-Ray Astrophysics: SNRs, GRBs, Blazars, AGNs, etc...

Plenary talks L. Drury, W. Hofmann, P. Michelson, M. Tavani

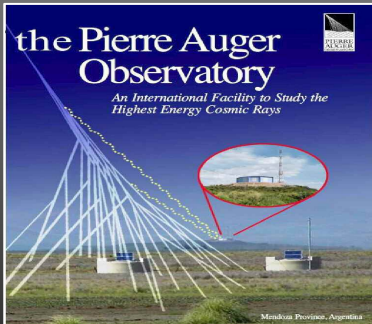
Parallel session n. 1 (convenors F. Aharonian and L. Drury)



Neutrino Astrophysics: Galactic and Extragalactic sources, acoustic and radio techniques, multi-messenger approach

Plenary talks C. Spiering and E. Waxman

Parallel session n.4 (convenors J. Beacom and F. Halzen)

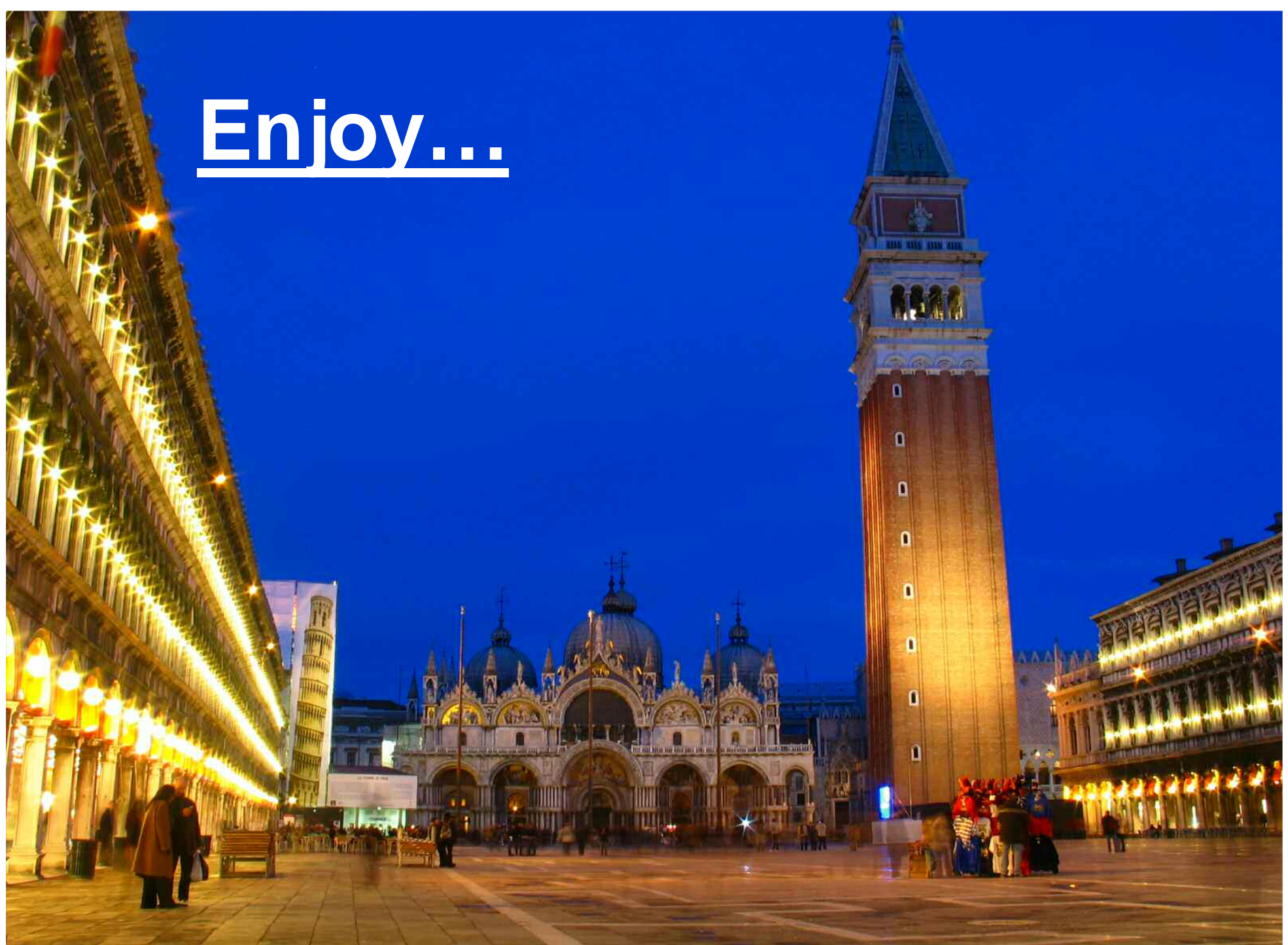


UHE Cosmic Rays: AUGER results, acceleration mechanism, origin of spectral features, connection with gamma-rays

Plenary talks: I. Moskalenko, A. Olinto and D. Semikoz

Parallel session n. 2 (convenors P. Blasi and D. Grasso)

Enjoy...



07/09/200

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G. Bertone, *Overview TeVPA III*

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