

Ground-based gamma-ray astronomy: status and future

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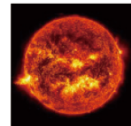
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Author introduction

Felix A. Aharonian (born 23 May 1952) is a physicist and astrophysicist. He is a recognized authority on the origin of cosmic rays science and pioneer in ground-based gamma-ray astronomy. He received his Ph.D. from the Moscow Engineering Physics Institute and is Professor of Astrophysics, Dublin Institute for Advanced Studies (DIAS), Dublin, Ireland and Head of High Energy Astrophysics Theory Group, Max Planck Institute for Nuclear Physics (MPIK), Heidelberg, Germany. He was selected as Member of Max-Planck Society (elected in 2006), external member of the National Academy of Sciences of Armenia (elected in 2008) the member of Royal Irish Academy (elected in 2011) and member of Academia Europaea (elected in 2017).



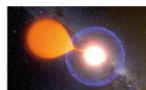
Relativistic Matter Factories



non-thermal processes in Universe proceed everywhere and on all astronomical scales:



Stars



Novae



SNRs



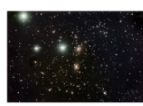
Microquasars



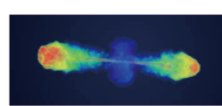
Neutron Stars*



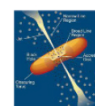
Galaxies



Galaxy Clusters



Large Scale Jets of AG



Blazars

* accelerators associated with Neutron Stars



Pulsars

wind



Pulsar Wind Nebula



Binary pulsars



(BNS mergers)



(short) GRBs



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Abstract In this video article the author covers the history and current status of ground-based gamma-ray astronomy. The recent results in this field have brought important implications to various aspects in astrophysics, such as cosmic ray science and black holes and dark matters, and thus advanced our understanding of the dynamic non-thermal universe. The author also discusses the future prospects in this field, especially the possible imaging air Cherenkov telescopes in GeV energy range.

Keywords gamma-rays, cosmic rays

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