

8th Heidelberg International Symposium on High-Energy Gamma-Ray Astronomy

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Open Questions in Extra-Galactic Jetted Objects

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The launch of the Compton Gamma-Ray Observatory (CGRO) ushered in a new era in our understanding of the phenomenon of relativistic jets produced by compact objects. AGN with radio jets pointed towards us (blazars) turned out to be unexpectedly powerful and rapidly variable gamma-ray sources, while gamma-ray bursts were shown to be distributed isotropically on the sky, significantly increasing the chances that they were extragalactic in origin and thus also incredibly powerful and likely associated with relativistic outflows (jets). In many ways, however, the CGRO observations turned out to be just the “tip of the iceberg.” Thirty years later, we now know the gamma-ray emission from jets is even more extreme and complex than originally anticipated, e.g., extending to multi-TeV energies and varying down to minute timescales in the case of blazar AGN. I will review the progress that we have made since CGRO in understanding the nature and the physical implications of the gamma-ray emission from relativistic jets and will highlight the several questions that remain open.

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