THIRD ASTERICS – OBELICS WORKSHOP
New paths in data analysis and open data provision in Astronomy and Astroparticle Physics
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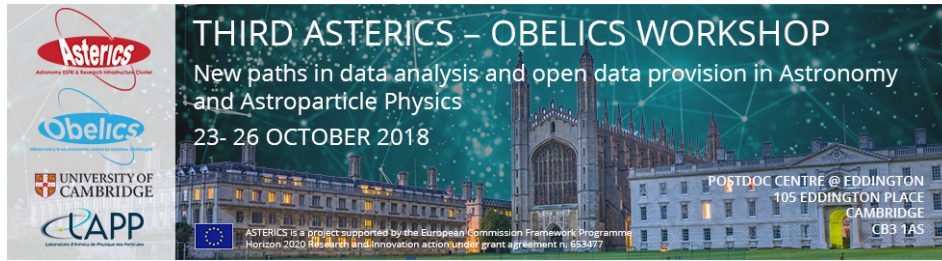
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Machine learning in the Cherenkov Telescope Array

Wednesday, 24 October 2018 11:00 (30 minutes)

The sensitivity of ground-based gamma-ray telescopes based on the imaging atmospheric Cherenkov technique (IACTs) is driven by, among other factors, our ability to reconstruct the primary particles that originate the extended atmospheric showers that are imaged by the
telescopes: this particle reconstruction enables us to classify gamma-ray events from the much more frequent background of cosmic-ray events. Supervised machine learning algorithms, like random forest or boosted decision trees, have been successfully applied to the task of event reconstruction by current generation IACTs, substantially improving their sensitivity. In this talk we will briefly review the state-of-the-art of machine-learning based event reconstruction for current-generation IACTs and will present an overview of the novel approaches, like deep learning, currently being explored for the Cherenkov Telescope Array, the next-generation gamma-ray observatory.

Presenter: Dr NIETO, Daniel