PROCEEDINGS OF SCIENCE

On the Underlying Particles in the Jet of 3C 279

Eugenio Bottacini*
Dipartimento di Fisica e Astronomia G. Galilei, Università di Padova, I-35131 Padova, Italy
Istituto Nazionale di Fisica Nucleare, Sezione di Padova, I-35131 Padova, Italy
E-mail: eugenio.bottacini@unipd.it

Markus Böttcher
Centre for Space Research, North-West University, Potchefstroom 2531, South Africa

Elena Pian
INAF, Istituto di Astrofisica Spaziale e Fisica Cosmica, via P. Gobetti 101, 40129 Bologna, Italy
Scuola Normale Superiore, Piazza dei Cavalieri 7, 56122 Pisa, Italy
INFN, Sezione di Pisa, Largo Pontecorvo 3, 56127 Pisa, Italy

Werner Collmar
Max-Planck-Institut für extraterrestrische Physik, Giessenbach, 85748 Garching, Germany

Dario Gasparrini
Agenzia Spaziale Italiana (ASI) Science Data Center, I-00133 Roma, Italy
Istituto Nazionale di Fisica Nucleare, Sezione di Perugia, I-06123 Perugia, Italy

Recent high-energy missions have allowed keeping watch over blazars in flaring states, which provide deep insights into the engine powered by supermassive black holes. However, having a blazar caught in a very bright flaring state is not easy requiring long surveys. Therefore, the observation of such flaring events represents a goldmine for theoretical studies. Such a flaring event was captured by the *INTEGRAL* mission in June 2015 while performing its today's deepest extragalactic survey when it caught the prominent blazar 3C 279 in its brightest flare ever recorded at gamma rays. The flare was simultaneously recorded by the *Fermi* gamma-ray mission, by the *Swift* mission, by the *INTEGRAL* mission and by observations ranging from UV, through optical to the near-IR bands. The derived snapshot of this broad spectral energy distribution of the flare has been modeled in the context of a one-zone radiation transfer leptonic and lepto-hadronic models constraining the single emission components. We discuss results and challenges faced by trying to reconcile these observations and theory. Also we show how the recently published VHE data from H.E.S.S. of the same flare tie in with our lepto-hadronic model.

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*Speaker.

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