Workshop on Multifrequency Behaviour of High Energy Cosmic Sources

Vulcano, Sicily, Italy May 23-28, 2011

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FOREWORD

The workshop on **Multifrequency Behaviour of High Energy Cosmic Sources** is a classical biennial meeting held in the same historical place for our workshops: the beautiful and wild island of Vulcano. We are completely convinced that a deep discussion on the multifrequency behaviour of high energy cosmic sources, defined mostly by the physical processes rather than the types of objects, is the most powerful way for a better and faster development of our knowledge of the physics governing our Universe. For this purpose, we invited distinguished colleagues representative the most important space– and ground–based experiments of the present generation. They painted the whole panorama on the experimental results and on their interpretation by using current models and/or developing new ideas for a better comprehension of the detected phenomena. During the discussion of a lot of new results, obtained along most of the electromagnetic spectrum, we have learned that the astrophysics of galactic sources is still extremely interesting and unavoidable. Indeed it provides crucial information on the same physical processes occurring also in the extra–galactic sources, with obvious different scale factors. Moreover, new results coming from very high energy γ-ray experiments have shown the richness — and its potential increase — of the sky at those energies having detected more than 100 cosmic sources until few years ago completely unknown, but hopefully to be detected since the cosmic ray spectrum extends up to energies as high as $\geq 10^{20}$ eV. The fluxes of very high energy γ-rays are attenuated because of their interactions with the cosmic radio, microwave, infrared and optical radiation fields. Measurements of the flux attenuation can then provide important information on the distribution of such fields. Then, very high energy γ-ray astronomy is the most powerful tool for solving the problem about the origin of cosmic rays.

Many thanks to the authors, which accepted our reminders recalled at the beginning of the workshop, for keeping to schedule. However, in spite of the accurate respect of the dead line of a number of authors, we still suffer a delay in publishing these proceedings because of the laziness of a considerable part of other authors. In spite of this, these proceedings will appear within one year from the workshop date.

This is the ninth edition of the workshop (tenth if we consider the first historical one, held in Vulcano in 1984), whose proceedings are published, once again, by the 'Memorie della Societá Astronomica Italiana'.

We would like to thank all participants and especially the speakers for their active contributions in rendering this workshop updated with their talks, alive with their discussions, and friendly with their attitudes. Particular thanks to Mr Francesco Reale for his excellent assistance for informatics in Roma, during the preparation of the workshop, and for his faultless assistance in Vulcano.

A very special thank to Lidia Barbanera for the management of the workshop. She is one of the three pioneers of the Frascati–Workshop–Series LOC, together with one of us (FG) and Mr Massimo Frutti who was not able to join us because of familiar reasons.

We are grateful to the pianist Maestra Valentina Usai, to the violinist Maestro Alessandro Perpich and to the actresses Lisa Colosimo and Flavia Giovannelli for their wonderful opera "L'histoire du Soldat" and "Suite Italienne" staged in the suggestive atmosphere of the Eolian Hotel.

A special thank to Dr Riccardo Antonini who gave a talk in a Special Night Session about "A Nuclear Weapons Free World: we already live in". The corresponding paper is available and will be sent upon request at the following addresses: franco.giovannelli@iaps.inaf.it or r.antonini@governo.it.

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Finally, we would like to thank Mr Maurizio Nicola Ribera, the Chef of the Eolian Hotel, who delighted us with his creations during our stay and to the whole staff of the Hotel for their professionalism and kindness.

The Editors
Franco Giovannelli and Lola Sabau-Graziati