Non-thermal phenomena in colliding galaxy clusters

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FOREWORD

The workshop *"Non-thermal phenomena in colliding galaxy clusters"* addressed a wide range of phenomena related to non-thermal particles and magnetic fields in and around galaxy clusters. These sites provide a unique laboratory for studying the physics of dilute plasmas. Recent years have seen rapid progress in this field, as radio, X-ray and gamma-ray telescopes are providing unprecedented new details and constraints on the properties of the intracluster relativistic plasma and its interplay with the thermal medium.

The nature and origin of non-thermal particles and magnetic fields in cosmological large-scale structures are still not fully understood. The most spectacular non-thermal phenomena appear to be related to collisions between galaxy clusters that free enormous amounts of energy. Addressing this connection was one of the main goals of the workshop. Other topics included non-thermal components in more relaxed clusters and large-scale filaments. We also discussed recent progress in theoretical and numerical works that attempt to model the origin and evolution of relativistic particles and magnetic fields.

The workshop brought together observers and theorists in order to develop the latest ideas and models for the cluster non-thermal components, and to devise strategies for future observations with the next generation of telescopes, such as the Low-Frequency Array (LOFAR), which will be conducting its first observations. The workshop was also intended to foster collaborations and introduce young scientists to the community. We had a total number of 72 participants who attended the conference, with 50 oral contributions, 10 posters and one public lecture (*"Exploring the Cosmos from the Moon"*) presented at "Université de Nice-Sophia Antipolis" by Prof. Jack Burns (University of Colorado at Boulder).[1]

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[1] More information at the conference web page: http://cassiopee.oca.eu/spip.php?article323