

JD10

Cluster Mergers and their Connection to
Radio Sources

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Joint Discussion 10: Foreword

Clusters of galaxies are no longer believed to be simple, relaxed structures, but are interpreted within the hierarchical growth of rich clusters via mergers of poor groups. This merger activity appears to be continuing at the present time, with influence on the formation and evolution of the different cluster components.

In this scenario the study of physical and morphological properties of clusters cannot be done at a single wavelength: X-Ray observations are necessary to study the cluster intergalactic medium and temperature gradients. Optical observations give the galaxy distribution and velocity dispersion and put in evidence the presence of sub-structures and/or of different groups merging with each other. Radio observations show the interaction between radio galaxies and the IGM, but first of all reveal the presence of large scale magnetic fields and of a population of relativistic particles whose origin and evolution is still under discussion.

For all these reasons and taking into account the major improvements in the observational results due both to the new satellites and to the highly sensitive ground instruments, it was timely and fruitful to have a Joint Discussion inside the IAU General Assembly in Manchester. The goal of JD 10 was to review the radio, optical and X-ray properties of clusters of galaxies, to present a unified point of view on different observational results, and to gain new insight into the interaction between thermal and relativistic plasma and its connection with the cluster dynamical processes.

The title of JD10 was *Cluster Mergers and their Connection to Radio Sources*. It was held on Monday 14 August, 2000 and was organized by Division X with the participation of Divs. VIII and XI. The SOC members were: M. Arnaud (France), H. Böhringer (Germany), J. Eilek (USA), L. Feretti (Italy, chair), G. Giovannini (Italy), D. Harris (USA), R. W. Hunstead (Australia), S. Maurogordato (France), and K. Roettiger (USA).

Since JD 10 was a one day meeting, the number of oral contribution was limited to 11 invited talks. Other contributions were presented as Posters, and a short presentation of each poster was given during the oral session.

In the following we present texts of the oral contributions in the order of their presentation. For the poster contributions, we give the abstracts and provide the author e-mail address for further contact.

List of Speakers:

X-Ray Observations of Cluster Mergers Before 2000AD	D.A. Buote
Chandra Observations of Clusters of Galaxies	W. Forman
First Results on Clusters observed with XMM/EPIC	M. Arnaud
Optical Analysis of Cluster Mergers	M. Girardi
Radio Halos in Merging Clusters	G. Giovannini
Diffuse Cluster-wide Radio Halos	H. Liang
X-ray Substructures of BCS, NORAS, REFLEX, Radio Halos/Relics and Cooling Flow Clusters of Galaxies	P. Schuecker
Radio Sources and Their Environment	F. Owen
The Magnetized Intracluster Plasma	J. Eilek
Particle Acceleration and Diffusion in Fossil Radio Plasma	T.A. Enßlin
Simulations of Merging Clusters of Galaxies	S. Schindler

We thank Lucia Padrielli for helpful suggestions. Many thanks are due to all the participants who allowed to have a fruitful and successful meeting.

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