Preface

The workshop on supersoft X-ray sources (and related objects) was held at the Max-Planck-Institut für extraterrestrische Physik (MPE) in Garching, Germany from February 28 to March 1, 1996. The decision to organise this workshop was made for three reasons. (1) With all of the ROSAT PSPC data being publicly available to every interested scientist, and with most of the relevant data (pointed observations of the Magellanic Clouds and the Andromeda galaxy and the all-sky survey data for a galactic population) being investigated, the number of expected discoveries of new supersoft sources along the previously used search strategies is small. (2) Since the community of scientists working actively in the field of supersoft X-ray sources is rather small, and since the work to be done, especially the optical identification and follow-up work, requires rare time on large telescopes, it seemed worthwile to bring all researchers in close contact to eventually combine the individual efforts. (3) With the variety of observational facts on supersoft X-ray sources and the establishment of links to rather diverse research areas it seemed appropriate to supply a forum for theoreticians to discuss new results, and to strengthen the connection between observers and theoreticians.

After the discovery of supersoft X-ray sources with Einstein Observatory observations, the ROSAT satellite with the MPE-built PSPC has discovered nearly three dozen new supersoft sources and has thus established luminous supersoft X-ray sources as a class of objects. Though many different classes of objects emit supersoft X-ray radiation (defined here as emission dominantly below 0.5 keV which corresponds to effective temperatures of the emitting objects below 50 eV), such as the Moon, single, nearby early type stars, single white dwarfs, central stars of planetary nebulae, PG 1159 stars, magnetic cataclysmic variables, some symbiotic binaries and a surprisingly large number of active galactic nuclei, the class of supersoft X-ray sources (as meant in these proceedings) is characterised by high bolometric luminosities (for galactic source standards) in the range $10^{36}-10^{38}$ erg/s. Optical observations have revealed the binary nature of several of these objects, supporting the idea that one deals with systems in which a white dwarf accretes matter at high rates from a more massive donor companion, and then burns it steadily on its surface.

The discovery of this class of objects has motivated substantial theoretical research, including population synthesis studies. Work has progressed on the study of the evolution of binary systems in which the donor is more massive than the accretor, and on understanding the role that stellar winds may play in such systems. The unique features of accretion disks in which the luminosity from the central source provides more energy than the accretion itself have also begun to be studied. Understanding hydrogen burning on white dwarfs is of central importance to our understanding of supersoft sources. Theoretical studies have also linked supersoft sources to diverse astrophysical phenomena, including Type Ia supernovae and the planetary nebula luminosity function. All of this led to extensive discussions between the attendees throughout the workshop. Indeed, the principal aim of the workshop was the presentation and discussion of recent observational results, as well as their theoretical implications for basically all the above mentioned areas.

This workshop would not have been possible without the dedication of our secretary Lynn Falke. It is a pleasure to express our thanks to her and the other staff members of MPE for providing the appropriate environment and a friendly atmosphere for effective discussions during the workshop.

The Max-Planck-Institut für extraterrestrische Physik not only provided the logistical support but also funded all the expenses of the workshop including the printing of these proceedings. This put us in the position of not having to charge a conference fee. We thank all the participants for their lively and fruitful contributions which made the three-day workshop so successful.

Garching
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Scientific Organising Committee
J. Greiner
F. Meyer
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