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### Preface

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# JOINT 9<sup>th</sup> EUROPEAN AND 5<sup>th</sup> NATIONAL ASTRONOMICAL MEETING (JENAM-2000)

‘European Astronomy at the Turn of the Millennium’

## PREFACE

### SECTION S06. FEEDBACK AND THE ISM STRUCTURE IN STAR FORMING GALAXIES

(Conveners: N. Bochkarev, J. Palous, G. Tenorio-Tagle)

The parallel section S6 was split into 8 sessions (2 hours each) during the afternoons of May 29 – May 31 and June 2. The invited keynote speakers covered following main subjects in 45 minutes talks:

Bubbles: observations and modeling, keynote speakers: N.G. Bochkarev (Russia), U. Klein (Germany) and A. Bykov (Russia). Bubbles and star formation, keynote speakers: Yu. N. Efremov (Russia), S. A. Silich (Ukraine) and R. Wielebinski (Germany). Disk-halo connection and the magnetic fields, keynote speakers: Yu. Shchekinov (Russia), D. Sokoloff (Russia). Self-regulation and feedback, keynote speaker: J. Palous (Czech Republic).

The review talks were complemented by 25 selected 20-minute contributed talks and about 15 posters. Unfortunately, for a variety of reasons many potential participants did not come, but even in this situation it was possible to keep the main line of S6.

Here, we give the outline and background of S06: The energy released by massive stars leads to a profound structuring of the ISM. Magnetic fields and turbulence play a role on small and even large scale, where structures with a plethora of shapes and 3D geometries are observed at all different wavelengths. Events such as photoionization as well as the winds and supernova explosions are responsible for expanding shells, supershells and in some extreme cases even for galactic winds. The ultraviolet stellar radiation leads through photoionization to some of the most obvious and spectacular nebulae.

Also through photoionization, massive stars are thought to disrupt their parent clouds. At the same time the recycling of the mass returned from stars, through winds and supernovae, back to the ISM, is an important ingredient in galactic evolution influencing the heavy element content, the mass inflow and outflow from

the galactic central regions and the formation of large-scale features. Given sufficient time, the expanding structures that result from the energy released by massive stars may become unstable and form new molecular clouds and thus lead eventually to new centers of star formation. In some extreme cases, propagating star formation may lead to giant bursts of star formation driving the ISM and the newly processed material into the intergalactic space causing the powerful superwinds thought to enrich intergalactic space.

#### SECTION S08. THE CENTRAL ENGINE OF AGN: STRUCTURE, FEEDING AND EVOLUTION

(Conveners: N.G. Bochkarev, B.V. Komberg, J. Lominadze, L. Woltjer;  
SOC: S. Collin, V.S. Beskin, E.Ya. Vilkovisky)

This colloquium took place during four afternoon sessions of about 4 hours each, plus a discussion on 'Spectral optical monitoring and BLR structure' held at the Sternberg Institute. Each session was attended by about hundred people. The sessions were held according to the scheduled program.

Four main topics were discussed. The first session was devoted to a review of the observations at all frequencies, from radio to high energy gamma rays: radio structures in AGN at the ultimately fine angular scale, X-rays from radio-quiet AGN observations and their interpretation, high energy gamma ray emission, and general results from multi-frequency observations. Then the central engine was discussed, the physics of the accretion disk, the interaction of stars with the accretion disk and with the black hole, and the formation of supermassive black holes. The environment of AGN was discussed in the framework of the Unifying Model: the narrow line region, its interaction with the central star cluster, the radio morphology of Seyfert galaxies, the orientation of the magnetic field, etc. The last session was devoted to a discussion of jets and wind in the magnetohydrodynamic context: new observational data and theoretical developments, the origin of astrophysical jets, models of the asymptotic structure of rotating MHD winds and jets, the magnetic field structures and thermal plasma distributions in the VLBI jets of BL Lac objects, MHD flows in the vicinity of the rotating black hole, and magnetic collimation of relativistic jets.

A special 1.5 hour long session was dedicated to Broad Line Region (BLR) problems. Optical observational data – photometry and polarimetry, as well as BL variability were considered. In addition, problems of interpretation and theoretical modelling were briefly discussed. In 1.5 hours more than 10 contributions were given and discussed.

There were also about 70 posters with a short oral presentation.

In all, the meeting had a high level. Reviews of the most recent observational progress were given, and important theoretical questions were addressed. Although the schedule was a bit tight, there were interesting discussions about the physics of the central engine and the interplay between the different constituents present close

to the black hole. More than half of the talks were given by western astronomers, so numerous contacts between western and eastern astronomers were made.

**SECTION S10. ULTRA-HIGH ANGULAR RESOLUTION IN ASTRONOMY**  
(Conveners: V.I. Slysh, L.V. Rykhlova, A. Zensus, F. Paresce, S. Volonte)

In Section 10, 'Ultra-High Angular Resolution in Astronomy', 18 oral and 13 poster reports were presented. New scientific results on high-angular resolution both in radio and optical astronomy were reported.

*N. G. BOCHKAREV*