The following report covers the Department activities from November 1999 through October 2000.

1 INTRODUCTION
The Department of Astronomy (DA) was founded in late 1994 as part of the Instituto de Física (IFUG, León) of “Universidad de Guanajuato” (UG), the university of Guanajuato state. The DA with a current staff of nine astronomers is located in the city of Guanajuato. Its main goals are teaching, research and outreach to the public. For additional information see the web site at http://www.astro.ugto.mx.

2 PERSONNEL
The members of the DA during the period covered were Heinz Andernach (Head of Dept. since March 1999), Elias Brinks, Hector Bravo-Alfaro, Patricia Carral, Philippe Eenens, Renée Kraan-Korteweg, and Victor Migenes. Omar López-Cruz from INAOE, Tonantzintla, is spending one year at the DA on a temporal position, and Roger Coziol (Montreal, Canada) is on a visiting professorship (CONACyT) for two years, both since September 2000.

3 ACADEMIC PROGRAM

3.1 Undergraduate Program
In 1998 the Licenciatura en Física (BSc) was formally created at UG and offers essentially a double-major in physics and astrophysics. The program was created to expose, prepare and nurture students interested in astronomy and astrophysics and to better prepare them for graduate programs and research. The BSc is a new program trying to prepare and nurture students interested in astronomy and astro- physics. The program was created to expose, prepare and nurture students interested in astronomy and astrophysics and to better prepare them for graduate programs and research. The BSc is a new program trying to prepare and nurture students interested in astronomy and astrophysics and to better prepare them for graduate programs and research. The BSc is a new program trying to prepare and nurture students interested in astronomy and astrophysics and to better prepare them for graduate programs and research. The BSc is a new program trying to prepare and nurture students interested in astronomy and astrophysics and to better prepare them for graduate programs and research. The BSc is a new program trying to prepare and nurture students interested in astronomy and astrophysics and to better prepare them for graduate programs and research. The BSc is a new program trying to prepare and nurture students interested in astronomy and astrophysics and to better prepare them for graduate programs and research.

3.2 Postgraduate Programs
The DA currently does not yet offer graduate studies in Astronomy. However, several staff members are co-supervising students for their MSc or PhD theses, and teach courses in other Mexican astronomy programs.

The DA owns the observatory “La Luz” located about 18 km west from Guanajuato city. It provides a 57-cm Ritchey-Chretien reflector, equipped with a photometer, and a CCD camera with a filter set is being acquired. The telescope will be used as a laboratory for students and for small research projects accessible to this kind of instrument (e.g. monitoring of relatively bright variable stars).

3.3 Theses supervised
M. Ochoa-Silva is working on his MSc thesis on the distribution of nearby clusters of galaxies, supervised by R. Kraan-Korteweg and H. Andernach. E. Brinks is co-supervising the PhD thesis of J. Ott at Bonn University, Germany, and of Luis Ramí rez, a student at INAOE, Tonantzintla, Mexico. F. Mariano of Universidad Autonomica de Puebla, Mexico, has finished his BSc thesis supervised by H. Bravo-Alfaro and E. Brinks.

3.4 Outreach
Since its foundation the DA has organized two annual cycles of five talks to the public, every spring and autumn. These tend to be delivered by Mexican astronomers in the center of Guanajuato.

Twice a month during the “dry season” (September through March) we offer guided tours to the “La Luz” Observatory to the public, usually attended by 10–25 people. Both the 57-cm telescope and an 8-inch Celestron are used for stargazing. The roof of the central building of UG is equipped with a 20-cm reflector (now under repair) as well as an 8-inch Celestron. The site is supervised by two engineers and open to the public every evening on weekdays. It is planned to host a Science Center devoted to public astronomical observations and presentations.

Every year since 1998 the DA has offered a 100-h course called “Diplomado de Astronomía.” It is open to the public and designed as an introductory astronomy course requiring little mathematical or physics background, but keeping a structured and systematical way of answering and discussing many of the questions and interests people have. On average it is attended by ~50 people with an increasing fraction of students.

3.5 Organization of Meetings
From Nov. 3–5, 1999, the Annual Meeting of Mexican astronomers was organized by the DA and over 80 astronomers gathered in Guanajuato. This was the 13th such meeting, but the first one of its kind to be held outside the premises of IA-UNAM – a reflection of the recent growth of astronomy in the Mexican province.

From Feb 22–29, 2000, the DA organized the international meeting “Mapping the Hidden Universe: The Universe behind the Milky Way – The Universe in HI,” held in Guanajuato and attended by over 50 astronomers from all continents. The conference proceedings were edited by R.C. Kraan-Korteweg, P.A. Henning, and H. Andernach, and are due to appear in late 2000 as volume 218 of the ASP Conference Series.
4 RESEARCH

4.1 Stars and Star Formation

P. Eenens studies the physical characteristics, chemical composition and structure of winds of massive stars, as well as the parameters of variable stars and interactions between components of binary stars. The aim is to understand the process of stellar formation and evolution based on the observable phenomena involved. He also investigates the physical properties of Wolf-Rayet stars, the processes in their interior, as well as effects of rotation and mass loss. He uses stellar spectroscopy to determine distances and abundances of some OB stars in clusters. He also chairs the IAU Working Group on Hot Massive Stars and edits the Hot Star Newsletter.

P. Carral investigates the formation of massive stars through interferometric observations of radio continuum and molecular line emission. She studies molecular cores in order to identify their heating source and to understand their evolutionary state and their relation with ultracompact HII regions.

V. Migenes uses radio-interferometric techniques to observe the spectral and continuum emission from star formation regions and late-type stars. He studies the physical and kinematical conditions in these regions. In particular he uses the various maser lines of OH, H$_2$O and SiO and their properties to probe the sources’ most active regions with sub-arcsecond resolution in order to better understand the processes involved in star formation, the chemical composition and structure of the winds and mass loss processes in late-type stars, and finally the existence of black holes in the nuclei of galaxies. He also applies radio-interferometric techniques to study the origin and nature of the non-thermal emission from radio stars.

4.2 Formation and Evolution of Galaxies

The research by E. Brinks focusses on nearby galaxies. He collaborates in a multi-wavelength study of the interstellar medium in nearby dwarf irregular galaxies with the aim to understand the interaction between sites of massive star formation and the ISM. He is also involved in a collaboration to study a particular class of interactions in galaxies, those which are near-grazing encounters which lead to characteristic eye-shaped, or caustic, features in one of the galaxies involved. Furthermore, he is actively participating in studies of tidally induced dwarf galaxies. He also pursues HI observations of extremely low metallicity dwarf galaxies, such as SBS 0335–052, and he edits the Newsletter on Dwarf Tails.

H. Bravo-Alfaro uses multi-wavelength observations of spiral galaxies in clusters, e.g. 21-cm and radio continuum, optical photometry and spectroscopy to study environmental effects between galaxies and the intracluster medium, observational features of starburst and post-starburst galaxies, and dynamical stages of galaxy clusters. He participates in a team observing nearby ($0<z\leq0.2$) clusters of galaxies in HI, which has been allocated 400 hours of VLA time for the period 2000–2001. A sample of HII galaxies in clusters is being observed in HI and in the optical to look for environmental effects in clusters as compared to field galaxies.

R. Coziol studies the effect of environment on galaxy evolution in compact groups of galaxies and in the field, searching for an evolutionary relation between the HII galaxies and the more massive starburst nucleus galaxies, based on radio data as well as optical and near-infrared spectroscopy and imaging. He collaborates with Migenes on the search for new extragalactic H$_2$O masers.

4.3 Observational Cosmology

With various international collaborations, R. Kraan-Korteweg continues her research of uncovering the galaxy distribution behind the Milky Way through various observational multi-wavelength approaches (optical, near infrared, and blind HI surveys) to obtain a better understanding of the peculiar velocity of the Local Group (to be compared to the dipole anisotropy in the CMB radiation), other streaming motions (such as in the Great Attractor region), and the possible continuation (or existence) of superclusters across or behind the Milky Way. A status report on these projects can be found in Kraan-Korteweg & Lahav (2000) and in the ASP Conference Series vol. 218 on “Mapping the Hidden Universe.”

H. Andernach is involved in a collaboration on a radio-X-ray study of relic radio sources in clusters of galaxies to determine their morphology and radio spectral shapes, as well as their cosmic ray content via the inverse-Compton effect. He has also performed (with others) a deep radio search for gravitational arcs in several southern Abell clusters which are prominent in X-rays. He maintains a compilation of published redshifts of Abell clusters of galaxies and, with colleagues at Tartu Observatory, exploits it for the determination of the structure of the nearby Universe. (Estonia). Together with collaborators at SAO (Russia), he is looking for radio and optical counterparts to radio sources found at decametric frequencies, with the help of the largest radio source database (CATS, http://cats.sao.ru). The latter is maintained by a group at SAO (Russia) in collaboration with H. Andernach.

On the basis of optical photometry, O. López-Cruz studies the evolution and luminosity function of galaxies in clusters, with special interest in dwarf galaxies, as well as the morphology of clusters as a whole. He also uses measurements of the Sunyaev-Zeldovich effect towards clusters for the determination of cosmological parameters like $H_0$, $\Omega$ and $q_0$.

PUBLICATIONS

Referred papers by department members, published, accepted or submitted from Jan.–Oct. 2000, are included.

