

**THE IMPACT OF NEAR-INFRARED SKY SURVEYS
ON GALACTIC AND EXTRAGALACTIC ASTRONOMY**

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TABLE OF CONTENTS

Foreword	ix
List of Participants	xi

I-Infrared Survey Status

N. EPCHEIN/ The Deep Near Infrared Survey of the Southern Sky (DENIS) <i>Progress Report and Scientific Results Overview</i>	3
M. SKRUTSKIE/ The Two Micron All Sky Survey (2MASS): Status Report November 1997	11
S.D. PRICE, M.P. EGAN, R.F. SHIPMAN, M. COHEN and M. MOSHIR/ Midcourse Space Experiment Surveys	17

II-Galactic Structure

O. BIENAYMÉ/ The Impact of IR Surveys on Galactic Structure	31
M. UNAVANE and G. GILMORE/ Resolved DENIS and UKIRT Infrared Stellar Observations Towards the Galactic Center	41
A. OMONT, B. CAILLAUD, P. FOUQUE, G. GILMORE, D. OJHA, M. PERAULT, P. SEGUIN, G. SIMON, R.F.G. WYSE, and the ISOGAL-DENIS TEAM/ Mass-Losing AGB Stars and Young Stars in the ISOGAL Survey	49
M. LÓPEZ-CORREDOIRA, F. GARZÓN, P.L. HAMMERSLEY, T.J. MAHONEY, and X. CALBET/ Galactic Bulge from TMGS Star Counts	57
P.L. HAMMERSLEY, F. GARZÓN, T. MAHONEY and M. LÓPEZ-CORREDOIRA/ IR Star Counts in the Inner Disc	63
S. RUPHY/ Spatial Distribution of Evolved Giant Stars in the Galactic Disc using DENIS Data (<i>abstract</i>)	69

III-Stars

M.A.T. GROENEWEGEN/ Infrared Emission of Carbon Stars	73
M. SCHULTHEIS, G. SIMON, and J. HRON/ AGB Stars in the Galactic Bulge observed by DENIS	87

C. ALARD/ Analysis of DENIS Data in ISO GAL Fields	95
T FORVEILLE, X. DELFOSSE and N. EPCHEIN/ In quest of Very Low Mass Stars and Brown Dwarfs with Near-IR Surveys	101
J. DAVY KIRKPATRICK, M.F. SKRUTSKIE, J. LIEBERT, K. LUHMAN, M. FISHER, R. CUTRI, C. BEICHMAN, C. LONSDALE, N. REID, D. MONET, and C. DAHN/ Searching for Low-Mass Stars and Brown Dwarfs with 2MASS	109
C. LOUP, P.A. DUC, P. FOUQUÉ, E. BERTIN, and N. EPCHEIN/ DENIS Survey of AGB and Tip-RGB Stars in the LMC Bar West and the Optical Center Fields	115
R. ALVAREZ and M.-O. MENNESSIER/ DENIS and HIPPARCOS: Luminosity and Kinematic Calibrations	129
Z. BEREND and L.J. BALÁZS/ Maximum Likelihood Estimation of the Scale Height of Mira Variables	135

IV-Star forming regions and Interstellar medium

J.M. CARPENTER/ 2MASS Observations of Molecular Clouds	141
T. MONTMERLE/ Star Forming Regions and Near-Infrared Surveys (<i>abstract</i>)	155
L. CAMBRESY/ A Study of Extinction and Star Formation in the Chamaeleon I Cloud with DENIS	157
P. PERSI, E. COPET, and A.A. KAAS/ DENIS and ISOCAM Observations of Chamaeleon I Cloud	165
S. KIMESWENGER/ Planetary Nebulae with DENIS	171

V-Extragalactic

G.A. MAMON, J. BORSENBERGER, M. TRICOTTET, V. BANCHET/ Galaxies with DENIS	177
S.E. SCHNEIDER, J.L. ROSENBERG, T.H. JARRETT, T.J. CHESTER and J.P. HUCHRA/ Extragalactic Astronomy with 2MASS	193
R.C. KRAAN-KORTEWEG, A. SCHRÖDER, G.A. MAMON and S. RUPHY/ Large-scale Structures Behind the Milky Way from Near-IR surveys	209

G. PATUREL, I. VAUGLIN, M.C. MARTHINET, C. PETIT, J. BORSENBERGER and L. PROVOST/ Rapid Extraction of Galaxies from DENIS	221
B. MOBASHER/ Wide-angle Near-infrared Surveys of Local Galaxies	229
T. JARRETT/ Detection of Low Surface Brightness Galaxies in 2MASS	239
J.L. ROSENBERG/ 2MASS and the Tully-Fisher Relation	247
R. CUTRI, B.O. NELSON, C.J. LONSDALE, H.E. SMITH/ QSOs in the 2-Micron All-Sky Surveys (<i>abstract</i>)	255
R. BECKER/ The First-VLA Survey: the first 5000 Square Degrees (<i>abstract</i>)	257
E.A. GONZÁLEZ-SOLARES, I. PÉREZ-FOURNON and ELAIS COLLABORATION/ FIRST/VLA Radiosources in ELAIS Areas	259
VI-Miscellaneous	
E. BERTIN/ The SOM-fitting Method	267
A. BAUDRAND, A. BEC-BORSENBERGER, A. BARUCCI and G. SIMON/ Near infrared Observations of Asteroids	277
Index of Authors	281

FOREWORD

Thirty years after the pioneering enterprise of Neugebauer and collaborators, the astronomical sky is surveyed anew in the near infrared range with a gain in sensitivity greater than 4 orders of magnitude. Data have started to come through the “pipelines” routinely and at the turn of the century, the astronomical community will be provided with immense databases that will eventually contain accurate positions and 3- colour (or even 4-colour after merging DENIS and 2MASS data) photometry for hundreds million of stars and millions of galaxies.

This fantastic harvest of data will eventually result of the huge effort that has been deployed on both sides of the Atlantic to promote 2 major projects, 2MASS and DENIS.

The basic aim of this 3rd Euroconference (and last in the series), was to put in close contact the scientific teams of 2MASS and DENIS in order to present and discuss the first significant results of the two surveys and to start promoting possible future plans of collaboration. It was preceded by a workshop, with a smaller attendance, sponsored by a NSF-CNRS action, that was dedicated to the technical aspects of the data processing and database implementation and management. The Euroconference itself, although short (2 days) has been rather dense and animated, and real advances in various fields were presented that promise a final great success.

After several months of operations in *proto-phase* or in routine phase, and having archived a good deal of data, we are now in a better position to start answering some of the key questions that were addressed at the beginning of the projects. What are we going to learn with the 2 micron survey data ? What will be the size of the final catalogues (stars and galaxies)? How homogeneous, complete, and reliable will they be ? What are the most appropriate algorithms for image processing, source extraction, star/galaxy separation, photometric calibration of point sources and low surface brightness objects. Finally, how to manage to the best the astrophysical exploitation and follow-up of the surveys, while 8–10 meter class telescopes are flourishing around the world, while ISO is about to end up

after a very successful mission, and while future space missions such as SIRTf are in preparation phase. Some answers are extremely exciting. We will eventually find hundreds of brown dwarfs and thousands of very low mass stars, improve the local luminosity function and several basic parameters of the galactic structure, probe the stellar populations of the Magellanic clouds and of the bulge. The largest photometric catalog of galaxies will be produced, superseding in reliability and photometric accuracy the catalogs based on digitised photographic material. This will lead to unprecedented statistical works on the local structure of the Universe and the census of galaxies in the zone of avoidance, just to cite a few examples.

This conference has, indeed, been very fruitful in exchanging information between the American and European teams. It has been also a good opportunity to compare our working technics and methods, and to note that the European Science needs to be better organised to manage middle-size projects that are not fully sponsored by official institutions such as ESO.

The European Commission (DGXII) that supported this cycle of EUROCONFERENCE and the early phase of DENIS is thanked for its invaluable contribution. I sincerely regret that it did not pursue its support while the programme is entering its active phase of scientific exploitation.

It is a great pleasure for me to warmly thank all the participants to this conference, the Scientific and Local Organising Committees, and especially those who have presented excellent talks and provided me with outstanding written contributions. I am also greatly indebted to Eric Copet, Christine Denis, Constance Imad, Jacqueline Thouvay, Jean-Jacques Poisot and Suzanne Berton, from Observatoire de Paris and Josette Schmidt from Institut d'Astrophysique de Paris for the fine organisation of the logistics of the conference sessions and dinner.

Finally, I thank Alain Omont for having taken the responsibility of this cycle of EUROCONFERENCE during the last 3 years.

Nicolas Epchtein

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