



ESA Symposium on

The Promise of FIRST

Toledo, Spain, 12-15 December 2000

Scientific Programme

Version: 8 December 2000

Monday 11 December 2000

16.00 Registration - until 20.00

Tuesday 12 December 2000

08.30 Registration

Session 0: Welcome

09.00 LOC: Welcome and Practicalities

09.05 R. Bonnet, ESA Director of Science

09.15 E. Martinez Ataz, 1st Vicerektor of the University of Castilla La Mancha

09.20 J. Bono, President of the Governement of Castilla La Mancha

Session 1: Introducing the FIRST mission

09.30 R. Genzel: A general view of IR astrophysics

10.00 G. Pilbratt: The FIRST mission: Science objectives and this meeting

10.30 T. Passvogel: The FIRST mission: Implementation status and schedule

11.00 *coffee break + mount posters*

Session 2: Introducing the FIRST instruments

11.30 A. Poglitsch: The FIRST PACS instrument

12.00 M. Griffin: The FIRST SPIRE instrument

12.30 Th. de Graauw: The FIRST HIFI instrument

13.00 *lunch break*



Session 3: Introducing the context of FIRST

- 14.30 M. Kessler: The results of ISO
15.00 T. Phillips: FIRST in the context of other facilities
15.30 G. Melnick: SWAS - Observational performance and lessons learned
16.00 T. Nakagawa: The ASTRO-F survey as input for FIRST
16.30 J.-L. Puget: The IR background and potential FIRST and Planck synergies
17.00 *coffee break + posters*

Session 4: A taster of FIRST science

- 17.30 M. Rowan-Robinson: Deep surveys and source counts
18.00 P. André: The earliest stages of star formation - Protostars and dense cores
18.30 D. Bockelée-Morvan: Comets and asteroids with FIRST
19.30 *Welcome drink at San Pedro Martir*

Wednesday 13 December 2000

- 08.30 Registration

Session 5: Extragalactic surveys & star formation

- 09.00 A. Franceschini: Deep surveys with FIRST and cosmology - A revised case
09.30 A. Lawrence: Quasars, starbursts, and the cosmic energy budget
10.00 A. Fuente: Outflow dynamics, accretion disks, and chemical abundances
10.30 E. van Dishoeck: Molecular line surveys of star-forming regions with FIRST
11.00 *coffee break + posters*

Session 6a: Extragalactic surveys

- 11.30 P. Andreani: Simulations of the infrared sky
11.50 S. Oliver: Extra-galactic field surveys with FIRST - Practical considerations
12.10 I. Pérez-Fournon: Optical and near-IR follow-up of the European Large Area ISO Survey
12.30 M. Stickel: The ISO 170 μm serendipity survey
13.00 *lunch break*

Session 6b: Star formation

- 11.30 Th. Henning: Physics of high-mass star formation - Contributions from PACS
11.45 P. Saraceno: Star formation in clusters: From ISO to FIRST
12.00 P. Cox: A 350 μm study of massive star formation regions
12.15 S. Molinari: Protoclusters and the formation of massive stars
12.30 B. Nisini: The study of protostellar outflows with FIRST
12.45 G. White: Probing the centre of the canonical YSO L1551 IRS5 - What we have learned from ISO, and the implications for FIRST science



13.00 *lunch break*

Session 7: Far & near

- 14.30 M. Pettini: Chemical abundances over cosmic time
15.00 E. Lellouch: Observations of planet and satellite atmospheres and surfaces with FIRST
15.30 Introduction to panel discussions (plenary session)
16.00 *extended coffee break + posters*

Session 8ab.: Panel discussions, part 1

- 17.00 Panel discussions (approx. 2 hours, but can continue until dinner)

Thursday 14 December 2000

08.30 Registration

Session 9: Galaxies & stars

- 09.00 D. Lutz: Spectroscopy of ultraluminous and interacting galaxies
09.30 J. Fischer: The promise of FIRST studies of normal and dwarf galaxies
10.00 J. Cernicharo: H₂O in interstellar and circumstellar clouds - What we know and what could be expected from FIRST
10.30 M. Guélin: Molecular spectroscopy in AGB star envelopes
11.00 *coffee break + posters*

Session 10a: Galaxies and galaxy clusters

- 11.30 M. Giard: FIRST/Planck synergies on clusters of galaxies
11.45 M. Haas: Dust in PG quasars as seen by ISO
12.00 L. Tacconi: Stellar and gas dynamics in ultraluminous mergers
12.15 L. Spinoglio: Far-infrared energy distributions of active galaxies in the local universe and beyond - From ISO to FIRST
12.30 I. Márquez: Mid-FIR properties of ELAIS sources
12.45 M. Sauvage: Mid-IR properties of normal spirals - Questions for the Far-IR
13.00 *lunch break*

Session 10b: Evolved stars and dust, part 1

- 11.30 F. Kerschbaum: The promise for AGB stars - The physics/chemistry of the inner circumstellar envelope, and the mass loss history
11.45 F. Herpin: Evolution of carbon-rich proto-planetary objects
12.00 V. Bujarrabal: Excitation and dynamics of the gas in planetary and proto-planetary nebulae - Optical, IR, and mm-wave data
12.15 A. Castro-Carrizo: ISO observations of atomic fine-structure lines from proto-planetary nebulae
12.30 J. Trujillo Bueno: Very fast iterative methods for radiative transfer applications



12.45 A. Asensio Ramos: Radiative transfer in molecular lines

13.00 *lunch break*

Session 11a: Extragalactic spectroscopy and C⁺

14.30 P. van der Werf: Extragalactic astronomy with HIFI

14.45 S. Malhotra: FIR spectroscopic signatures of young galaxies

15.00 S. Madden: Heating and cooling of the ISM in low metallicity environments

15.15 S. Garcia-Burillo: Extragalactic chemistry of starbursts

15.30 T. Fritz: Tracing the molecular gas in starforming dwarf galaxies - The need for CII observations

15.45 *extended coffee break + posters*

Session 11b: Water, ISM, and spectroscopy

14.30 E. González-Alfonso: Models of H₂O emission/absorption in molecular clouds and circumstellar envelopes

14.45 C. Ceccarelli: Water line emission from the envelopes surrounding solar type protostars

15.00 E. Caux: Large atomic oxygen abundances observed toward molecular clouds

15.15 E. Habart: Observations of a nonstationary PDR

15.30 M. Houde: Using FIRST to probe the magnetic field with low-mass molecular ions

15.45 *extended coffee break + posters*

Session 12ab.: Panel discussions, part 2

16.30 Panel discussions - summary part 1 (plenary session)

17.00 Panel discussions (approx. 2 hours, but can continue until dinner)

20.00 *Conference dinner with after dinner talk by M. Harwit - venue Hotel Beatriz*

Friday 15 December 2000

08.30 Registration

Session 13: Circumstellar and interstellar matter

09.00 M. Barlow: Evolved stars, post-AGB objects and planetary nebulae - Dust properties and energy distributions

09.30 M. Gerin: The diffuse interstellar medium

10.00 X. Tielens: From ISM dust to protoplanetary dust

10.30 *coffee break + poster dismounting*

Session 14a: Instruments

11.00 J.-Ph. Bernard: Implications of the PRONAOS observations for large scale surveys with FIRST

11.15 I. Ristorcelli: ELISA - A small balloon-borne experiment to guide future observations with FIRST

11.30 D. Scott: The balloon-borne large aperture submillimetre telescope (BLAST)



- 11.45 P. Schilke: Strategies for HIFI line surveys
12.00 J. Stutzki: Absorption measurements of cold halo gas - FIRST's sensitivity
12.15 R. Liseau: The submillimetre satellite ODIN
12.30 E. Gaztanaga: The Large Millimeter Telescope (LMT/GTM) in relation to FIRST
12.45 *lunch break*

Session 14b: Evolved stars and dust, part 2 & Galactic surveys

- 11.00 F. Boulanger: The physics of cold matter far from UV sources
11.15 A. Abergel: Mapping the evolution of dust particles in the cold ISM
11.30 C. Joblin: Search for PAH-like species with HIFI
11.45 B. Stepnik: Evolution of the dust properties in a translucent cloud
12.00 K. van der Hucht: Active dust formation by population I Wolf-Rayet WC stars
12.15 D. Johnstone: JCMT SCUBA-diving in nearby molecular clouds: The case for large systematic surveys with FIRST
12.30 T. Prusti: Young stellar clusters: from ISO to FIRST
12.45 *lunch break*

Session 15: Panel reporting and conference summary

- 14.15 Panel discussion reports
16.15 Conference summary and wrapping up
16.45 END of formal programme

Poster presentations

In alphabetical order after the first author:

1. J. Alcolea: The origin of the bipolarity in the post-AGB evolution: the case of OH 231.8+4.21
2. M. Benedettini: The circumstellar environment of MWC297: ISO results and FIRST expectations
3. A. Boselli: The $^{12}\text{CO}(1-0)$ to H_2 conversion factor in normal late-type galaxies: the contribution of FIRST
4. V. Buat: The FIR/submm end far-ultraviolet emissions of galaxies: The FIRST and GALEX surveys
5. M. Burgdorf: ISO Far-Infrared Spectroscopic Observations of Jupiter
6. F. Cabrera-Guerra: Spectroscopic properties of new IR galaxies detected in the European Large Area ISO Survey
7. J. Cepa: OSIRIS-FIRST Scientific Program
8. S. Chan: On the nature of carbon stars
9. C. Codella: Waiting for FIRST: The Evolution of Molecular Outflows



10. C. Codella: Star Formation in the Bright Rimmed Globule IC1396N
11. C. Comito: Simulating a FIRST sight: spectral line surveys at THz frequencies
12. A. Coustenis: Titan observations with ISO
13. Th. Encrenaz: Observations of Mars at Infrared and Microwave Wavelengths: Perspectives For FIRST
14. M. Fich: Water in Star Forming Regions
15. T. Giannini: Far Infrared line cooling in Class 0 objects
16. J. Goicoechea: Spectroscopy of Key molecular species in the Far-Infrared
17. J. Goicoechea: The Millimeter and Submillimeter Spectrum of CRL 618
18. E. Gonzalez-Solares: Deep Optical and Near-IR imaging in the ELAIS areas
19. E. Gregersen: Infall in starless cores
20. J. Gromke: Combined Cosmology Programs with SPIRE and Planck HFI
21. V. Gromov: Project Submillimetron: The Cryogenic Telescope for the International Space Station
22. L. Hanlon: Far-infrared observations of gamma-ray bursts and possibilities with FIRST
23. A. Heithausen: The structure of cirrus clouds at different galactic altitudes
24. D. Huber: Fragmentation in Kinematically Cold Disks
25. T. Jacq: Water abundance: first interferometer maps of H₂¹⁸O and other water isotopes towards hot molecular cores
26. W. Langer: Pre-Protostellar Core Properties from Far-IR Observations
27. B. Lefloch: Hot Dust Around Warm Stars in the Trifid Nebula
28. D. Lis: Quiescent Giant Molecular Cloud Cores in the Galactic Center
29. D. Lorenzetti: Far IR Spectroscopy of Pre-Main Sequence Stars: The Lesson Learned from ISO and Perspectives
30. S. Maret: High rotational lines from the Orion BN/KL star forming region
31. I. Marquez: C⁺ in LINERs Galaxies
32. B. Matthews: FIRST Observations in Low-Intermediate Mass Star Forming Regions
33. A. Melchior: Simulating galaxy surveys with FIRST (PACS & SPIRE)
34. M. Miville-Deschenes: The abundance of small dust particles in cirrus clouds: the impact of turbulence and the implication for the thermal balance of the gas
35. T. Nakagawa: SPICA (Space Infrared Telescope for Cosmology & Astrophysics): a mission optimized for mid- and far-infrared astronomy
36. L. Pagani: L134N revisited
37. G. Petitpas: Atomic Carbon in Twin Peaked Starburst Galaxies
38. J. Rizzo: Signposts of massive stellar evolution onto the ambient neutral gas. The case of NGC 2359
39. N. Rodriguez-Fernandez: The Galactic center Interstellar Medium: from ISO to FIRST
40. M. Senent: MRCI/CASSCF study of the structures and spectroscopic properties of C₃, C₃H⁺ and C₃H



41. V. Shematovich: A Monte Carlo code for radiative transfer in molecular lines: Application for CO and water lines in circumstellar shells
42. L. Spinoglio: Water cooling in protostellar objects: results of the ISO-LWS and the future role of FIRST
43. H. Sugita: Preliminary Thermal Design Analysis of Large-Sized Infrared Telescope for SPICA
44. N. Tothill: Dust and Gas Temperatures in Orion B
45. C. Vastel: Modelisation of the PDR in the HII region W49N
46. C. Vastel: High resolution ISO-LWS observations of [OI] in absorption towards Sagittarius B2
47. M. Willaime: ISO observations of M31: the need of FIRST
48. H. Wozniak: Structure of the MIR emission in the circum-nuclear regions of active and/or starburst galaxies
49. A. Zavagno: Dust distribution in Galactic compact HII regions ISOCAM view and the promise of FIRST