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PREFACE

The terrible flooding in central Europe last August left some of its most severe damage in the Czech Republic, in particular Prague. While I note from correspondence with Jan Vondrák and Jan Palouš that the work on preparing for the XXVIth IAU General Assembly is not affected, I wish to express the warm sympathy of myself and the Secretariat on the personal hardships and sufferings that they and their colleagues have experienced.

This is the second-to-last Information Bulletin to appear before the XXVth IAU General Assembly in Sydney. I hope you will soon make up your mind to attend, in case you haven't already done so. For your guidance we include into this IB the complete list of main scientific events, somewhat revised with respect to the one in IB 91. We include all updates and modifications regarding the individual meetings that have come to our attention as well as additional information on topics and speakers wherever this has been submitted to us. For the remaining meetings we refer back to IB 91 and hope that more information is soon forthcoming on the meeting web pages, which are linked from the GA XXV web page, <http://www.astronomy2003.com>. You will also see that our Australian hosts have provided additional information on different matters, published here together with a repeat of the most essential facts already mentioned in IB 91. In particular, do not forget to arrange your Australian visa in time - especially if you do not have access to Australia's electronic travel authority!

Most Forms inserted into the middle of this IB refer to the multitude of touristic activities that you can sign up and register for in addition to the GA itself. With the exception of the Travel Grant Form, we do not repeat the forms of IB 91 but if you have lost them, you can make all your bookings and registrations electronically via the GA website, or ask ICMS Australia for new forms. Please keep in mind the deadlines, which you will find listed in § 2 of this IB!

Vol. 12 of *Highlights of Astronomy* was published in 2002, and I hope you will agree with me that the papers written for this book match the high scientific standard of the Manchester meetings very well. By the time you receive this Bulletin, I also hope that IAU Transactions XXVA with the triennial reports 1999-2002 of Divisions, Commissions and Working Groups will have been printed in order to appear in time before the General Assembly. In the report on the 76th Executive Committee Meeting (IB91, p. 49) I mentioned the aim to publish the Information Bulletin mainly electronically in the future, and I can now report that work has been done and progress made so that this can start to happen in 2004. A requirement is that brief announcements, both on IBs and other matters, can be distributed by e-mail to a much larger fraction of the IAU members than is currently possible. We will thus make an effort to actively seek as many of the missing e-mail addresses as feasible, and any help you can offer is greatly appreciated.

Finally, let me express my warm appreciation and gratitude for the fine work done at the IAU Secretariat by Monique Orine and Estelle Denos. Our work is as hard and stressful as it has ever been, and I am sorry not to have been able to improve those conditions. I am thankful to Monique and Estelle for their dedication to their work and the IAU.

A Happy New Year 2003 from the Officers and the Secretariat, and see you in Sydney!

Hans Rickman, General Secretary

1. FATS DIVERS

Autumn has come to Uppsala after the warmest summer in 250 years. Harsh winds are blowing, showers bring rain at the verge of forming snow flakes, and woods and fields are waiting for winter. Although this scenery has a peculiar beauty, I find it heartening to remember what I experienced of Australian early winter, as I visited Sydney at the end of June, something that seemed more like summer to me as a Swede. From there I can also report that preparations are gearing up for the XXVth General Assembly in July 2003, and that the logistics promise to be of utmost quality. In particular, the Darling Harbour area with the Convention Center will offer as nearly perfect a setting as possible for our great event.

Among the other good news from the IAU horizon I want to mention in particular two recent successes: the Asian-Pacific Regional Meeting in Tokyo, Japan, and the 26th International School for Young Astronomers in Argentina. These events work at the heart of the IAU agenda, because the first brought together some 300 astronomers from a range of different research environments where many met for the first time, and the second offered one of the foremost occasions we've ever had to broaden the base of astronomical knowledge in countries where this is wanted. It is particularly gratifying to note that this could occur in a country in extreme economic difficulties, where even everyday life has turned into a hardship. I'm very grateful to all those whose hard work made that feat possible (see further Michèle Gerbaldi's report on p. § 8.3).

Of course, the award of the 2002 Nobel Prize in physics to the discoveries of cosmic neutrinos (Raymond Davis Jr. and Masatoshi Koshiba) and the opening up of the X-Ray "window" to the Universe beyond the Solar System (Riccardo Giacconi) is also very good news to astronomy. Not only does it give very well deserved credit for work of fundamental importance to astrophysics and physics in general, it also brings significant media attention to astronomy and helps convince tax payers across the continents that the money paid for the exploration of the Universe is well invested (see further § 12.3).

Finally, a few personal thoughts on planets. The number of extrasolar planets indirectly or directly observed, though not yet imaged, recently passed 100. And moreover, the details sometimes revealed about these objects are truly amazing. It is hard to grasp how this field can have developed so rapidly, and it will be truly exciting to see what the future will bring. On the contrary, the number of planets in the Solar System is not likely to grow, even if new transneptunian objects will be discovered that reach the size of Pluto. The discovery of the latter was such a singular event for its time that it is reasonable to call Pluto a planet, but planetary status is too significant in people's minds to be shared by ill-defined herds of objects in the Edgeworth-Kuiper belt!

Hans Rickman, General Secretary

2. MAIN DEADLINES AND EVENTS 2003

	2003	
Jan.	15	Submit Resolutions type A without financial implications
	* 30	Submit nominations for the PGF Cosmology Prize 2003
Feb.	03-07	IAU Colloquium 191, Yucatan, Mexico
	* 06-07	Officers Meeting Paris, France
	15	Submit Abstracts to Symposium/JD/SPS SOCs
	15	Submit Travel Grant applications to GA Symposium SOCs
	15	Submit other GA Travel Grant applications to GS
	15	Proposals due by Adhering Organizations for new IAU Members
	15	Consultants to be proposed by Commissions
	15	Proposals due for agenda items of GA XXV
	28	Proposals due for meetings in 2004 to AGS
Mar.	01	Recommendation to AGS on Symposium Travel Grants
	15	Notify all Travel Grant Applicants
	15	Send agenda of GA to Adhering Organizations
Apr.	01	Contributions due for IB 93 (June 2003)
	01	New Div/Comm Officers and Boards/OCs to be nominated
	01	Suggest (re-)appointment of Working Groups
	01	Nominations to Special Nominating Committee
	15	Appointments of National Representatives at GA XXV
	15	Submit Resolutions type B without financial implications
	15	Invitations to non-Members to GA XXV
	22-26	IAU Colloquium 192, Valencia, Spain
	30	Deadline for Early Registration at GA XXV
	* 30	Deadline for PGF Fellowship Application
May	15	Submit final Abstracts of accepted papers
June	TBD	IB 93 issued
	23-28	Co-sponsored Symposium, Tatranská Lomnica, Slovakia
July	06-11	IAU Colloquium 193, Christchurch, New Zealand
	11	End of pre-registration GA XXV
	13	Start of on-site registration GA XXV
	13-26	XXVth IAU General Assembly, Sydney, Australia
	13-24	77th EC Meeting Sydney, Australia
	14-17	IAU Symposium 216, Sydney, Australia
	14-17	IAU Symposium 217, Sydney, Australia
	14-17	IAU Symposium 218, Sydney, Australia
	21-25	IAU Symposium 219, Sydney, Australia
	21-25	IAU Symposium 220, Sydney, Australia
	22-25	IAU Symposium 221, Sydney, Australia
	25-26	78th EC Meeting Sydney, Australia
Oct.	01	Manuscripts for Transactions XXVB due at Secretariat
	01	Contributions due for IB 94 (January 2004)
	15	Contributions to Highlights 13 due at Secretariat
Nov.	17-21	IAU Colloquium 194, La Paz, Mexico
*		Additional deadlines and dates, not listed in IB 91

3. SCIENTIFIC MEETINGS

**Proposals for IAU Symposia, Colloquia, and co-sponsored meetings
planned for 2004 must reach the Assistant General Secretary**

no later than February 28, 2003

in order to be considered at the 78th Executive Committee meeting.

See <http://www.iau.org/Activities/meetings>

3.1. FUTURE IAU SYMPOSIA

Symposium 216: Maps of the Cosmos

July 14-17, 2003, Sydney, Australia

[See IB 91, p. 30, tinted pages](#)

Symposium 217: Recycling Intergalactic & Interstellar Matter

July 14-17 2003, Sydney, Australia

[See IB 91, p. 30, tinted pages & p. 30 of this IB](#)

Symposium 218: Young Neutron & Their Environment

July 14-17, 2003, Sydney, Australia

[See IB 91, p. 31, tinted pages](#)

Symposium 219: Stars as Suns: Activity, Evolution & Planets

July 21-25, 2003, Sydney, Australia

[See IB 91, p. 31, tinted pages](#)

Symposium 220: Dark Matter in Galaxies

July 21-25, 2003, Sydney, Australia

[See IB 91, p. 32, tinted pages & p. 31 of this IB](#)

Symposium 221: Star Formation at High Angular Resolution

July 22-25, 2003, Sydney, Australia

[See IB 91, p. 32, tinted pages](#)

3.2. FUTURE IAU COLLOQUIA

Colloquium 191: The Environment & Evolution of Binary Stars

February 3-7, 2003, Yucatan, Mexico

[See IB 91, pp. 7-8](#)

Colloquium 192: Supernovae (10 years of SN1993J)

April 22-26, 2003, Valencia, Spain

[See IB 91, p. 8](#)

Colloquium 193: Variable Stars in the Local Group

July 6-11, 2003, Christchurch, New Zealand

[See IB 91, pp. 8-9](#)

Colloquium 194: Compact Binaries in the Galaxy & Beyond
 November 17-21, 2003, La Paz, Mexico
 New Chair, Local Organizing Committee: Sergey Zharikov*
[See IB 91, p. 9](#)

* Please note change

3.3. IAU GENERAL ASSEMBLIES

XXVth IAU General Assembly & associated Symposia

13-26 July, 2003, Sydney, Australia

Contact address: IAU Secretariat, 98bis, bd Arago FR 75014 Paris, France

Tel: 33 1 43 25 8358 - Fax: 33 1 43 25 2616

Email: iau@iap.fr - <http://www.astronomy2003.com/>

XXVIth IAU General Assembly & associated Symposia

13-26 August, 2006, Prague, Czech R

Contact address: IAU Secretariat, 98bis, bd Arago FR 75014 Paris, France

Tel: 33 1 43 25 8358 - Fax: 33 1 43 25 2616 - Email: iau@iap.fr

3.4. FUTURE CO-SPONSORED MEETING

SCOSTEP/IAU co-sponsored Symposium: Solar Variability as an Input to the Earth Environment

June 23-28, 2003, Tatranská Lomnica, Slovakia

[See IB 91, pp. 9-10](#)

3.5. FUTURE CO-SPONSORED WORKSHOP

Second COSPAR/IAU Capacity-Workshop in X-Ray Astronomy

January 2003, Udaipur, India

[See IB 91, p. 10](#)

4. NEWS FROM DIVISIONS

DIVISION I: FUNDAMENTAL ASTRONOMY (Nicole Capitaine)

Information on the next IAU GA: The one-day Joint Discussion (Tuesday, July 22, 2003) on "The International Celestial Reference System (ICRS): Maintenance and Future Realization" (chairs of the SOC: F. Mignard and D.D. McCarthy), which was proposed by Commission 19 and Division I for the next IAU GA, has been selected as JD16 by the IAU Executive Committee and this JD has received the support of Divisions IV (Stars) and X (Radio Astronomy) as well as of the International Association of Geodesy. This JD will include invited, contributed and poster presentations of the most recent scientific developments on the ICRS as well as revised concepts and models to access the system. It will also consider the plans for future maintenance and improvements of the ICRS, extension to other wavelengths, impact of space-based astrometry and relation to the dynamical reference system.

A one day scientific meeting of Division will be held during the next GA, possibly Monday, July 21. Scientific matters of Division I Working Groups and Commissions will be discussed during this meeting as well as the future organization of these WGs and Commissions and future scientific meetings in the scope of the Division. Among possible topics of discussions are issues relative to the implementation of IAU Resolutions 2000 and corresponding terminologies, and future practices. The participation of all people belonging to Division I, or interested in the work of this Division, is welcome.

Additionally, meetings of Commissions 4, 7, 8, 19 and 31 are planned as usual with possible scientific sessions to be advertized in advance. All the members of the commissions are invited to participate in these meetings.

Among the other selected meetings, the following ones are of interest for Division I:

- JD02 on "Mercury" (proposed by D III : C 16, 49 and WG ESP.),
- Special Session on "Recent progress in planetary exploration" (proposed by D III: C 16)
- Special Session 3 on "A new classification scheme for multiple objects" (proposed by Division IV).

It is hoped that the largest number of members of Division I participate in the GA in order that the discussions during the meetings above can be efficient for the progress in the scientific topics of the Division.

DIVISION III: PLANETARY SYSTEMS SCIENCES (Mikhail Marov)

During May-September, 2002, three IAU-sponsored meetings were held with Division III endorsement. All of these were great successes and significantly advanced various challenging topics.

Symp. 211: Brown Dwarfs

Brown Dwarfs have emerged as new objects in observational astronomy in the last few years. While they have unique properties by themselves, they are also connected with other important areas of astronomy such as the missing mass, galactic structure, star formation and planet formation. Many current problems in Brown Dwarf research were addressed. It is understood that the progress in this new field of astrophysics will come from larger surveys for Brown Dwarfs, spectroscopic follow-up, multiwavelength campaigns to search for variability, and theoretical efforts to understand the origins, evolution and properties of these enigmatic objects. The Symposium provided an excellent opportunity to elaborate a strategy, based on the acquired experience, to plan future surveys best fitted to fulfill the needs, and to coordinate follow-up observations with the new large ground-based and space telescopes.

Symposium 213: Bioastronomy 2002: Life Among the Stars

The last few years have seen a rapid growth in the field of bioastronomy, which has grown from a minority interest to a significant area of mainstream astronomy. This revolution has included such important advances as:

- The discovery of extrasolar planets that has created a vigorous new field of astronomy and opened up new fields of exploration for the study of gas giant planets/brown dwarfs and their habitats;
- The appearance of putative nanobacteria in a meteorite from Mars, coupled with the growing appreciation of the importance of bacteria in studies of terrestrial life;
- A growing awareness both of mechanisms for transferring primitive life forms between planets, and of the potential importance of very primitive organisms in the formation of life;
- The discovery of conditions suitable for life on other planets in our Solar System;
- Advances in technology that have rapidly increased the sensitivity of SETI searches;
- An increasing amount of work on understanding the origins of life.

This Symposium was the seventh in the series that have been organized by Commission 51 over the past 20 years, but the recent advances listed above mean that this one is likely to foster considerably more interdisciplinary connections than previous conferences in the series. On the other hand, bioastronomy is also becoming more tightly integrated with other areas of astronomy. The aim was to explore all such links, to foster collaboration

between different groups and different fields, and to try to answer the linked questions of "Where are conditions suitable for life?" and "Are we alone in the Universe?". These and other challenging goals of the Symposium, which was perfectly organized, were achieved.

Colloquium 189: Astrophysical Tides: The effects in the Solar and Exoplanetary Systems

A tidal effect is defined to be the effect caused by variation in the gravitational field across a finite sized body and so it can play a role in a wide range of problems in astrophysics. The aim of this Colloquium was to look at the applications of tidal effects within the Solar System and other planetary systems.

Although the existence of the tidal effect has been known for a long time, many new applications in the solar system and other planetary systems are now being recognized, and the meeting became a forum for the exchange of ideas and methodologies devoted to these important astrophysical phenomena.

DIVISION V: VARIABLE STARS (Edward F. Guinan)

Division V consists of Commissions 27 (Variable Stars) and 42 (Close Binaries). Currently the Division V Board is composed of a total of 7 representatives from C 27 and C 42. The past and current Presidents of C 27 and C 42 serve and two additional board members are elected from each Commission and the board. The current Division V Board members are S. Balona (South Africa), J. Christensen-Dalsgaard (Denmark), E. Guinan (President, USA), M. Jerzykiewicz (Poland), D. Kurtz (UK), J. Sahade (Argentina) and P.Szkody (USA). This Division currently has about 850 members whose primary common interest is the variability of single and binary stars and its astrophysical ramifications. These include:

- stellar pulsation and intrinsic instability
- solar oscillations (helioseismology) and solar-like variability
- eruptive stars (flare stars, novae, and supernovae)
- variability produced by rotation and magnetic activity (e.g. RS CVn, BY Dra stars and pulsars)
- and variability arising from dust clouds, circumstellar disks and ejecta (e.g. R CrB, T Tauri stars, etc.)

Light variations in close binaries arise from a variety of ways - such as eclipses, proximity effects (tidal distortions and irradiation) and also from the effects of gas streams and circumstellar disks. We live in a very exciting time for the study of variable and close binary stars. For example, over the last decade, concerted ground-based photometric programs have discovered tens of thousands of new variable stars in our Galaxy and in the Local Group. In the near future ground-based and orbiting telescopes will discover tens (or hundreds) of thousands more variable stars. With planned space missions such as Kepler, which can measure stellar brightness with a precision of better than 0.1 millimag it may turn out that most of the stars in the sky will be variable stars. The variability of stars is not confined to the optical wavelengths but includes γ -rays, X-rays, UV, IR, and radio wavelengths. Also variations in the spectra and polarization are of interest and are important for understanding the physical nature of the stars. More recently (and in the near future) light variations from the eclipses and proximity effects of close exosolar planet-star binary systems are also being vigorously investigated.

During May 2002, the IAU Executive Committee met in St. Petersburg Russia. This was the first time that the IAU Division Presidents were invited to participate in a non-General Assembly meeting. One of the major results of this meeting was the selection of IAU Symposia, Colloquia, and Joint Discussions that will be held during 2003. All of the Joint Discussions and the the symposia will take place during the IAU XXVth General Assembly

(see elsewhere in this Bulletin). In particular, a very interesting and attractive program for the General Assembly has been approved. Importantly for Division V members (and others interested in stellar variability), a large number of these meetings and Joint Discussions have been organized, sponsored or endorsed by Division V. These meetings should be of great interest to many Division V members:

- Colloquium 191: Environment and Evolution of Binary Stars
February 03-07, 2003: Merida (Yucatan), Mexico
Contact Address: C.D. Scarfe, E-mail: scarfe@uvic.ca
- Colloquium 193: Variable Stars in the Local Group of Galaxies
July 06-11, 2003, Christchurch, New Zealand
Contact Address: D.W. Kurtz, E-mail: dwkurtz@uclan.ac.uk
Note that this Colloquium takes place one week prior to the General Assembly in Sydney. Air travel time between Christchurch and Sydney is about 3 hours.
- Colloquium 194: Compact Binaries in the Galaxy and Beyond
November 17-21, 2003, La Paz, Mexico
Contact Address: G. Tovmassian,
E-mail: gag@sciences.sdsu.edu or gag@astroten.unam.mx

Meetings supported or organized by Division V at the XXVth General Assembly include Symposium 219, Joint Discussions 5, 9, 12, 14 and 20 (see this Bulletin and IB91). Division V also is planning to request time during the General Assembly for a business meeting and two science sessions. These sessions are being organized to bring the members of C 42 and C 27 together (also all interested IAU members are invited to attend) to discuss recent results and developments in the study of variable stars and close binary systems. For information and suggestions please contact me at edward.guinan@villanova.edu. In addition to the meetings listed above, there are a number of other very interesting Symposia, Joint Discussions and Special Sessions scheduled in Sydney that will be worth attending. We hope that you can come to Sydney and attend the XXVth General Assembly, meet old friends and meet new ones, and enjoy all of the exciting talks and discussions that are being planned.

Additionally, Division V supports or sponsors three IAU Working Groups. More information can be found about their activities by contacting their chairs:

- Working Group on Spectroscopic Data Archiving
Elizabeth Griffin <Elisabeth.Griffin@hia.nrc.ca>,
- Working Group on Active B Stars (with D IV),
Stanislav Stefl <sstefl@sunstel.asu.cas.cz>
- Working Group on Accretion Physics in Interacting Binaries (C 42)
Paula Szkody <szkody@alica.astro.washington.edu>.

Division VI: INTERSTELLAR MEDIUM (Bo Reipurth)

A moment of great importance, not least for members of Division VI, occurred on 8 July, 2002, when the ESO Council approved European participation through ESO in the bilateral (European-North American) project to construct the Atacama Large Millimeter Array. Europe and North America will share the project on a 50-50 basis.

The ALMA project now moves into its second phase, construction. With its 64 12-meter high-precision antennas employing baselines of up to 12 km, ALMA will be a millimeter/submillimeter match to the optical/infrared 8-meter to 10-meter class telescopes that have emerged in recent years. The receivers are chosen to cover the atmospheric windows between 0.3 and 10 millimeters, taking full advantage of the superb

location that has been identified at 5000 meter altitude near Cerro Chajnantor in northern Chile. When completed, ALMA will offer the astronomical community unprecedented opportunities to study, among others, star forming cloud cores, circumstellar disks and planet formation, envelopes of evolved stars, shock structures, and extragalactic molecular clouds at low and high redshift.

Division VII: GALACTIC SYSTEM (Georges Meylan)

The IAU Executive Committee has prepared an interesting program for the IAU General Assembly in July 2003 in Sydney, Australia. Quite a few of these Symposia and Joint Discussions are directly or indirectly supported by Division VII and its two Commissions (C 33: Structure & Dynamics of the Galactic System, and C37: Star Clusters and Associations).

In addition, the members of Division VII will meet in Sydney on Monday July 21 for the scientific and business meetings. The scientific meeting (see information and program on the web page of the Division, reachable via general IAU web page <http://www.iau.org>) will be common to both Commissions 33 and 37 and will be devoted to *The Formation of the Galactic Halo*, a theme which is not (at least directly) covered by any of the other scientific events of the GA. We hope to see many of you in Sydney for the scientific and business meetings of Division VII.

Numerous members of the Division VII have no or wrong e-mail address. Please, check your addresses on the On-line Membership Directory on the IAU web page at http://www.iau.org/cgi-iau/iau_mem.cgi and ask the IAU Secretariat to update it if necessary, otherwise you will remain unreachable.

Division VIII: GALAXIES & THE UNIVERSE (Virginia Trimble)

Division VIII of course urges all its members to attend the Sydney GA, where, as you can see from the draft program, there will be all sorts of exciting extragalactic Symposia and Joint Discussions. In addition, the Division is responsible for a half-day session on the connection between γ -ray bursters and supernovae, and if there is a topic that you see is missing from the program, please say so. Perhaps it can be squeezed in somewhere. The Division and its constituent Commissions will have a joint business meeting at the GA, and volunteers are still needed for some committee positions. The President has already sent in her registration materials (she managed to be registrate no. 13 at Manchester and is hoping for a luckier number this time). Have you?

The Division and its Commissions exist to do things that will make research and teaching easier, more efficient, and more productive for their members. If you can think of something we ought to be doing and are not, please get in touch. There is some risk that you may be asked to help with the task, but isn't that better than the job not being done at all?

The Division expects to re-establish a Supernova Working Group, now driven primarily by the existence of, and plans for, a number of large survey and follow-up programs. Wolfgang Hillebrandt has offered to act as the initial point of contact (email: wfh@IBM-1.MPA-Garching.mpg.de) for interested participants. An initial meeting of members and potential members is planned for the Sydney GA.

Division IX: OPTICAL & INFRARED TECHNIQUES (Arlo U. Landolt)

The Commissions and members of Division IX have been working on preparations for the General Assembly in Sydney during July 2003. Members of the Division will provide leadership in the Joint Discussion on Large Telescopes and the Virtual Observatory. They

will play supporting roles in the Joint Discussions on Solar and Solar-like Oscillations, and on Extragalactic Binaries. It is hoped that members of the Division will participate in these exciting programs, both in the planning for future telescope systems, and in the discussions of the recently obtained exquisite new stellar data.

Individuals who are members of Division IX are invited to participate in the work of the Commissions and of the Division. Please indicate your interest by writing to the President of the Division: landolt@baton.phys.lsu.edu, or to the Presidents of the Commissions:

- Commission 9: Dr. Ding-qiang Su at dqsu@nairc.ac.cn
- Commission 25: Dr. Chris Sterken at csterken@vub.ac.be
- Commission 30: Dr. Andrei Tokovinin at atokovinin@ctio.noao.edu.

The IAU Executive Committee and our Australian colleagues have put together an exciting program which should challenge even the most adept, and broaden the knowledge of all of us. We look forward to the exchange of the latest ideas and to renewing old friendships.

The Working Group on Optical/IR Interferometry held a two-day meeting on the Big Island of Hawaii, 29-30 August 2002. Groups represented included representatives of the Eur-Interferometry Initiative, the European Southern Observatory, and the Interferometry Science Center at the California Institute of Technology. The purpose of the meeting was to familiarize attendees with current work and goals and to open the possibility of closer collaborations. Thoughts were discussed of possible long term strategic planning for the next five to ten years. The second day of the meeting addressed more specialized topics, including strategies for calibrator selection, the creation of calibrator catalogs, a common format for calibrated imaging data, and a review of recent progress with imaging algorithms for optical/infrared photometry. The Working Group next will meet in July 2003 at the General Assembly in Sydney. Additional information concerning the Working Group may be found at <http://olbin.jpl.nasa.gov/iau/>.

Division X: RADIO ASTRONOMY (Lucia Padrielli)

Commissions 9, 40 and 50 will organize a joint meeting (60-90 minutes) at the next General Assembly in Sydney to discuss the consequences for Astronomy of the regulation of the use of infrared and optical frequencies by the International Telecommunication Union (ITU). Up to now the contact between ITU and IAU is ensured by radio astronomers (Commission 40), who do not always have enough technical expertise in the optical and infrared domains. The aim of the discussion is to bring together experts from the radio-infrared-optical electromagnetic range for:

- giving information about the ITU plan,
- discussing a strategy to advise ITU on the technical requirements of astronomy,
- appointing suitable people to represent optical and infrared astronomy at relevant ITU meetings.

5. COMMISSION MATTERS

5.1. ADDRESSES OF COMMISSION PRESIDENTS, VICE-PRESIDENTS & WGS OF THE EXECUTIVE COMMITTEE

4 - Ephemerides (D I)

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5 - Documentation & Astronomical Data (EC)

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6 - Astronomical Telegrams (EC)

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7 - Celestial Mechanics & Dynamical Astronomy (D I)

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8 - Astrometry (D I)

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9 - Instrumentation & Techniques (D IX)

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10 - Solar Activity (D II)

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12 - Solar Radiation & Structure (D II)

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14 - Atomic & Molecular Data (EC)

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15 - Physical Study of Comets & Minor Planets (D III)

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16 - Physical Study of Planets & Satellites (D III)

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19 - Rotation of the Earth (D I)

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20 - Positions & Motions of Minor Planets, Comets & Satellites (D III)

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21 - Light of the Night Sky (D III)

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22 - Meteors, Meteorites and Interplanetary Dust (D III)

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25 - Stellar Photometry & Polarimetry (D IX)

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26 - Double & Multiple Stars (D IV)

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36 - Theory of Stellar Atmospheres (D IV)

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5.2 COMMISSION REPORTS

Commission 6: Annual Report of the Central Bureau for Astronomical Telegrams 2001

A total of 229 *IAU Circulars* were published in 2001, up from the 213 published in 2000. The most popular topics covered were supernovae (whose discoveries appeared on 55% of the *Circulars*, while at least one separately titled follow-up item on a supernova appeared on 40% of the year's *IAUCs*) and comets (with non-spacecraft discoveries appearing on 17%, SOHO discoveries on 14%, and follow-up information on comets appearing on a quarter of the 2001 *Circulars*). These were followed by follow-up items involving novae and other unusual Galactic variable stars, which appeared on 28% of the year's *Circulars*. Eight percent of the year's *Circulars* contained items on γ -ray and X-ray transients, and 5% contained reports on radio transients.

There were 254 new supernova discoveries made in 2001 that were reported on *IAUCs* that year. However, several dozen supernovae found on 2001 images were not reported to the Central Bureau until 2002. The 2001 designations of extragalactic supernovae represent the highest number of supernovae in a calendar year, easily surpassing the previous record of 206 in 1999. In addition, seven supernovae found on images taken in previous years were announced and designated on *IAUCs* in 2001. Some 84 supernovae announced during the year were fainter than mag 20, attesting to the increase in searches for supernovae in distant, faint galaxies for cosmological studies. The two brightest supernovae of the year were SN 2001el in NGC 1448 (visual mag ~ 12.7 in September) and SN 2001ig in NGC 7424 (reaching visual mag ~ 12.3 in early January 2002). SN 2001bg in NGC 2608 peaked at mag ~ 13.7, and five other supernovae were reported between mag 14 and 15 during the year.

Nine *IAUCs* carried discoveries of novae and outbursts of recurrent novae or novalike variables during 2001. In addition, the year began with numerous items pertaining to V445 Pup, an apparently recurrent nova found toward the end of 2000 that initially defied classification. Three new Galactic novae announced on the *Circulars* during the year reached visual mag ~ 6.5 during a three-week period beginning mid-August (V2275 Cyg, V4739 Sgr, V4740 Sgr). Continuing a collaboration begun a few years ago between the CBAT and IAU Commission 27, N.N. Samus supplies new variable-star designations for novae to be announced on *IAUCs*, so that the permanent designations can be used almost immediately. There were also nine *Circulars* in 2001 covering reports on novae in M31, M33, and the Small Magellanic Cloud. Other unusual variables were also covered on *IAUCs*, and quite a number of items appeared concerning WZ Sge, which had its first outburst since 1978.

Numerous amateur astronomers were actively involved in searching the Solar and Heliospheric Observatory spacecraft's coronagraph images at the SOHO website, and many new such comets detected prior to 2001 were announced on *IAUCs* published during 2001. In addition to the scores of new SOHO comets announced during the year, some three dozen non-SOHO comets received new 2001 designations. Several pre-2001 non-SOHO comets also received new designations when announced on *IAUCs* in the year 2001. The recoveries (or rediscoveries) of three short-period comets (including 11D/Tempel-Swift, which hadn't been seen since 1908 and to which the name LINEAR was added following its independent rediscovery of this comet in December) were also

announced on *IAUCs* in 2001. Comet 39P/Oterma was recovered in August, although there were some prerecovery observations in 1998 and 1999, the first observations since 1962.

An increasing number of objects reported as asteroidal (and given minor-planet designations) were found to be cometary and announced as comets on *IAUCs* during 2001. The wide-field CCD surveys are finding more comets when they are far from the sun or comets that exhibit little activity, making it more common for comets to escape proper initial classification. The new designation scheme instituted in 1995, which permits comets to assume minor-planet designations, has been most helpful in this process, and the close work of the CBAT with the Minor Planet Center (MPC) in posting many of the “asteroidal” objects with unusual motion on the NEO Confirmation Page has been invaluable in quickly sorting out and announcing such comets.

Only one comet was discovered visually during 2001- C/2001 Q2 (Petriew). Amateur visual discoveries of comets, particularly those from the northern hemisphere, have lessened noticeably in recent years due in part to the professional minor-planet surveys, but the case is even more pronounced for supernovae. So it is quite curious that within a span of less than three weeks following Vance Petriew's discovery, the *Circulars* reported visual discoveries also of a supernova (SN 2001du, by Robert Evans) and two Galactic novae (both by Alfredo Pereira). The Edgar Wilson Award for the year 2000-2001 was announced on June 29 (*IAUC* 7652), with only two recipients, for comet C/2000 W1 (Utsunomiya-Jones) - a comet that, as detailed on the *Circulars*, faded unexpectedly over the first couple of months of 2001 into a diffuse glow, evidently disintegrating.

There were no really bright comets in 2001, though comet C/2001 A2 reached total visual mag ~ 3.5 in June and C/2000 WM₁ reached $m_1 \sim 5$ in December. A comet discovered in August at a heliocentric distance of 10 AU, C/2001 Q4 (NEAT), is likely to become a naked-eye object when near perihelion in May 2004. Numerous items regarding spectral observations from optical to radio wavelengths appeared on *IAUCs* during the year for C/2001 A2 and C/1999 T1, the latter being at $m_1 \sim 8$ in January. C/2001 A2 fragmented into at least five pieces. Such cometary fragmenting is becoming noticed more frequently now with increased CCD observation and has become a fairly common topic on the *Circulars*. The short-period comet 51P/Harrington was noted to have split in December, for example.

Seven *IAUCs* during the year covered the discoveries and follow-up information for numerous satellites of both major and minor planets. Companions were reported for various classes of dynamic objects, including a near-earth minor planet, main-belt asteroids, a Jupiter Trojan, and transneptunian objects (TNOs). Eight *Circulars* in 2001 each carried information on TNOs and on other minor planets, and four *IAUCs* in 2001 contained items on other solar-system objects (including an unusual near-earth object that was determined eventually to be an operational artificial spacecraft). Of note were observations reported in January and February on *IAUCs* that suggest a diameter for one TNO, (20000), that is about half that of Pluto. In April, the second TNO (after Pluto) to have a companion was announced, followed later in the year by two additional TNO cases.

It is frequently mentioned by astronomers that they appreciate having magnitudes of comets, novae, and supernovae published on *IAUCs* to aid in observing plans, and such data have been included for decades now. In addition, for the last several years, an interlinked website involving the CBAT, the MPC, and the International Comet Quarterly has included posting of total CCD and visual magnitude estimates of comets. The CBAT maintains its own “Headlines” webpage that lists conveniently the recent discoveries of

comets, novae, supernovae, and satellites of major and minor planets. Other aspects of the CBAT website were modified during the year (an ongoing process of website development) to add information at the request of astronomers and members of the news media and general public.

The number of paid subscribers to the printed edition of the IAU *Circulars* has continued to fall, from 243 at the end of 2000 to 216 at the end of 2001. In addition, there were 38 free (complimentary or exchange) subscriptions to the printed *IAUCs* at the end of 2001. The printed *IAUCs* go to 77 addresses within North America and 139 outside of North America. There were 501 paid subscribers to the CBAT/MPC electronic service at the end of 2001, compared with 498 at the end of 2000. The on-line posted *IAUCs* at the CBAT website now routinely are delayed by some days to non-subscribers, following complaints by paying subscribers when they were posted for all to view soon after issuance.

As in recent years, most of the *Circulars* in 2001 were prepared by the undersigned, with very helpful editorial backup by Director Emeritus B.G. Marsden (who prepared 13 *Circulars* during the year and helped to proofread and critique most of the rest prior to issuance). Minor Planet Center Associate Director Gareth Williams also maintains a strong presence, essentially as an acting Assistant Director to the Bureau, by also helping to proofread *Circulars*, contributing to many comet announcements that appear on the *Circulars* after appearing first on the MPC's NEO Confirmation Page, being ready to issue if Green and Marsden are travelling and helping to maintain the Bureau's presence on the World Wide Web. Many members of the astronomical community serve each year as referees for items submitted for publication on *IAUCs*, especially members of Commission 6, and we are grateful to them for their sometimes-considerable time spent in helping to assure the high quality of the published content on the *Circulars*. At SAO, Muazzez Lohmiller has continued to handle the accounts, addressing of envelopes, and other administrative matters; Judy Terry has also handled numerous CBAT administrative matters.

Daniel W E. Green, Director of the Bureau

6. 77th & 78th MEETINGS OF THE EXECUTIVE COMMITTEE

These EC meetings will be held at Darling Harbour Convention Centre in Sydney in connection with GA XXV. The 77th meeting will start July 13 and continue until noon, July 15, with a final session in the morning of July 24. The 78th EC meeting will take place July 25 and July 26. As usual, the Division Presidents are invited to attend these meetings (outgoing DPs for EC77, incoming DPs for EC78).

7. THE XXVth IAU GENERAL ASSEMBLY

UPDATE ON GA XXV BY THE NATIONAL ORGANISING COMMITTEE

The organisation of the XXVth General Assembly of the IAU in Sydney in July 2003, is moving ahead rapidly. Later in this Bulletin there is a reminder about the most important information for attendance at the GA. Arrangements for the Opening Ceremony at the Sydney Opera House, following a Welcome Reception, on Tuesday July 15, are being finalised. In addition to the Invited Discourses, several Public Lectures by high profile astronomers are being organised in conjunction with the GA, as is a variety of other astronomical events. Details will be inserted onto the GA website at <http://www.astronomy2003.com> as they become available. The closing Banquet will be held

in the Banquet Hall of the Convention Centre on the evening of Thursday, July 24, and plans are being made for it to showcase the varieties of life in Australia.

A Call for Papers, and online Abstract Submission page is now available at the GA website. Participants intending to submit abstracts for poster or oral presentations should do so through this facility.

IMPORTANT: Changes to Schedule of Scientific Meetings

There have been a few changes of the scheduling of some Joint Discussions and Special Sessions 1 and 2. These are as follows:

JD08 has moved from Thur/Fri/Sat July 17/18/19 to Thur/Fri July 17/18

JD10 has moved from Fri/Sat July 18/19 to Thur/Fri July 17/18

JD13 has moved from Fri/Sat July 18/19 to Thur/Fri July 17/18

SPS1 moved from Fri/Sat July 18/19 to Thur/Fri July 17/18

SPS2 initially scheduled Fri/Sat July 18/19 will be held Fri 18

Some of the rooms have also been changed. The schedule and individual locations of the main scientific events (Symposia, JDs and Special Sessions) are close to finalisation, except for the Division and Commission Meetings, which will not be available until early 2003.

A special attempt has been made to clear the weekend of July 18-19 of official GA events. This will enable participants to undertake sightseeing in Sydney and its surrounds, or to organise their own informal discussions with colleagues.

Harry Hyland & , John Whiteoak, Co-Chairs of the NOC

WHAT TO DO TO ATTEND THE XXVth IAU GENERAL ASSEMBLY:

IMPORTANT INFORMATION

INVITATION

In principle, attendance at an IAU General Assembly is by invitation of the President. Members of the IAU are automatically invited. Authorization to extend this invitation to non-Members is given to the national Adhering Organizations, Presidents of IAU Divisions, and Commissions, and Chairpersons of the Scientific Organising Committees of the Symposia, Joint Discussions and Special Sessions at the GA. Persons unable to use these channels should contact the IAU Secretariat in Paris (address on back cover). It should be noted, however, that an invitation to attend the General Assembly does not by itself imply any financial commitment towards the participant by the IAU or the National Organising Committee.

REGISTRATION

Registration is handled by the appointed Conference Organiser, ICMS Australasia (ICMS). Registrations will be received immediately following the publication of this Information Bulletin; appropriate instructions and forms are provided in IB91; registration is also possible by e-mail and through the GA Web page, <http://www.astronomy2003.com>. Electronic Registration is the preferred method to be followed and is available since October 18, 2002. Participants are encouraged to register early. The deadline for Early Registration, at the favourable rate, is 30 April, 2003; postal and electronic registrations will continue to be received until July 11, 2003. Thereafter, on-site registration at the GA venue, the Sydney Convention Centre, will be open from Saturday, 12 July, 2003. Note that decisions on approval of oral and poster contributions and on IAU Travel Grants will be provided in time for Early Registration to be made.

In addition, each participant, whether IAU Member or Invited Participant, may register one adult and one or more dependent children as Registered Guest(s). Guests may not attend the scientific meetings (except for the Invited Discourses), but otherwise have the same privileges as participants.

Late registration will still be possible from July 12, 2003 at the registration desk in the Sydney Convention Centre.

Registrations by telephone are not accepted.

Fees (All in AUD\$)	Registration received	
	before 1 May, 2003	1 May, 2003, or later
IAU Member/Invited Participant	880	1100
Registered Guest(s) (Above age 11)	230	230

Registration should be accompanied by apayment covering the registration fee. No registration will be confirmed until this payment has been received (See Payment Possibilities on Registration Form).

Thus, ICMS will handle all GA registrations. You may contact them at the following address:

ICMS Australasia Pty Ltd (IAU GA 25)
Level 9
234 George Street
AU Sydney NSW 2000, Australia

Telephone: 61 2 9241 1478
Fax: 61 2 9251 3552
E-mail: iau-ga2003@icmsaust.com.au

VISAS

All travellers to Australia, other than Australian and New Zealand citizens, are legally required to hold a valid visa to travel to Australia. Applications for visas should be made as soon as possible as there may be some delay.

It is strongly recommended that prospective participants check the rules applicable in their case with the Australian Embassy or Consul in their country of residence. This should be done well in advance of their travel (leave at least eight weeks for obtaining a visa), and in no case later than May 1, 2003. Travellers from the following countries are eligible to use Australia's electronic travel authority (ETA) which can be accessed at

<http://www.immi.gov.au/eta/index.htm>

Andorra, Austria, Belgium, Brunei, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Italy, Japan, Liechtenstein, Luxembourg, Malaysia, Malta, Monaco, The Netherlands, Norway, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, Taiwan*, UK - British Citizen or UK - British National (Overseas)**, USA, Vatican City

* Holders of Taiwan passports can only be processed for an ETA if resident in and applying in Taiwan.

** Holders of UK passports, which indicate their nationality to be British National (Overseas), can only be processed for an ETA if resident in and applying in Hong Kong

CONFIRMATION OF REGISTRATION

Registrations will be confirmed via e-mail/facsimile/mail by the ICMS office within two weeks after receipt of the Registration & Proceedings Pre-Order Form and payment. If no confirmation has arrived four weeks after your sending the payment, please contact ICMS.

CANCELLATION & REFUNDS POLICY

100% payment of the fee at the time of registration is requested. In the event of cancellation, a full refund will be given up to 30 April, 2003 less a AUD 150 administration

charge. Between 1 May and 21 June, 2003 a 50% refund will be given less the administration charge of AUD150. After this date no refund will be made. Guest fees will be refunded in full.

SCIENTIFIC CONTRIBUTIONS

If you wish to make a scientific contribution, whether oral or poster, to the scientific events listed in IB91 and repeated here and on the website, please contact the appropriate person indicated in the descriptions of the program, and provide an abstract of your paper by 15 February, 2003. Abstracts should be submitted using the link from the GA website www.astronomy2003.com, which is now available. The Chairpersons of the Scientific Organising Committees will inform you whether your contributions have been accepted, and in which form (oral or poster). In order to have the abstract of your approved contribution included in the Abstract Book, and to have actual poster space allocated in case of posters, your final Abstract will be provided by the SOC, also your Registration, with payment, must be submitted by May 15, 2003.

POSTER PAPERS

There will be space available for each poster of 1000mm(width) x 1200mm (height) which is enough to accommodate A0 size (841 x 1189 mm) posters in portrait format.

ORAL PRESENTATIONS

For all the major halls (Symposia, JDs and Special Sessions), both projection facilities for Powerpoint presentations, and overhead transparencies will be available. If you require other forms of presentation, please let the Chair of your Scientific Organising Committee know what is needed as soon as possible. For the smaller rooms where most of the Commission and Division Meetings will take place overhead transparency facilities will be standard. For these rooms alternative means of presentation may be available, but are not guaranteed.

TRAVEL GRANTS

The IAU devotes a sizeable share of its own budget, with generous extra subventions by major astronomical organizations, to support a limited number of prospective participants intending to contribute actively to the scientific events of the General Assembly, but unable to obtain necessary support from national sources. An *IAU Travel Grant Application Form* was included in IB 91 as well as in this IB, and is also available for downloading on the Web in PDF format together with the Rules for IAU Scientific Meetings. If you wish to apply for IAU support, the form should be submitted to the SOC Chair of the Symposium that you wish to attend. For all other events, your applications should be submitted to the IAU General Secretary.

The deadline for all IAU Travel Grant applications is February 15, 2003.

Prospective applicants should be aware that, despite our commitment of both our own and externally contributed funds, it is only possible to cover a small part of the total justified needs. Only truly deserving applicants can therefore expect support from the IAU. Grant recommendations from all events are checked and coordinated before award letters are sent out so that, at most, a single grant will be awarded to each individual. Grants will normally be paid to the successful applicant, in cash and in Australian Dollars (AUD), upon arrival and check-in at the registration desk.

NEWSPAPER/MEDIA

The Chief Editor of the daily newspaper at the GA will be Seth Shostak. Helen Sim will be in charge of media liaison.

FURTHER INFORMATION ABOUT ACCOMMODATION

Colleges at Sydney University

A large number of rooms providing comfortable low cost accommodation has been reserved for participants at four Colleges of the University of Sydney. There are about 100-150 rooms available in each College. The Colleges are located some 3.5-4 km from the Convention Centre, and it is intended to provide buses to the Convention Centre in the morning and a return bus to the Colleges in the evening. Two of the Colleges (Women's College and Wesley College) provide the opportunity for twin rooms, while the others only have single rooms. St Andrew's College provides a cooked breakfast in the tariff, while the other Colleges provide a continental breakfast. It should be noted that 100% payment of the fee is required at the time of booking.

The Colleges are:

- *Women's College*

Continental breakfast is included, and a limited number of twin rooms are available.

- *Wesley College*

Continental breakfast is included. Single and twin accommodation is available.

- *Sancta Sophia College*

Continental breakfast is included. Single rooms only are available.

- *St Andrew's College*

Cooked breakfast included. Single rooms only are available.

Novotel Sydney on Darling Harbour <http://www.accorhotels.com>

Centrally located with stunning views: Four star hotel with 525 spacious rooms and suites: Outdoor swimming pool, tennis court and gym: Baudin's restaurant and La Terrasse Cocktail Bar and Lounge. Internet and email access available in rooms. Credit Cards: AE, Visa, MC, Diners, BC, JCB. (<five minutes walk to Convention Centre)

Hotel Ibis Darling Harbour <http://www.accorhotels.com>

Quality three star hotel: 256 comfortable rooms with great views: Excellent value and service: Walk to attractions restaurants and shopping Brasserie du Jour and Skyline Bar. All major credit cards accepted. (Five minutes walk to Convention Centre)

Grand Mercure Apartments Darling Harbour <http://www.accorhotels.com>

Luxury four and a half star apartment hotel overlooking Darling Harbour: Two and three bedroom self contained apartments: rooftop pool, spa and fully equipped gym. All major credit cards accepted. (Five minutes walk to Convention Centre)

Four Points Hotel Sydney (161 Sussex Street, Sydney)

<http://www.fourpoints.com>

Fine four star accommodation in a building which combines heritage traditions and contemporary architecture: 645 rooms with city or Darling Harbour views. Credit cards: AE, Visa, MC, Diners, BC, JCB. It is a member of the Sheraton Group. (A short monorail ride, or 15 minutes walk from the Convention Centre.)

Star City (80 Pyrmont Street, Pyrmont, Sydney) <http://www.starcity.com.au>

A luxury five star hotel incorporating a Casino, and incorporating the 2000 seat Lyric theatre, which has live shows. High quality restaurants are within the complex. It has 352 rooms and 139 apartments, indoor/outdoor pool, spa, sauna, fax in rooms, business centre and a Health Club, airport shuttle and many other features. All major credit cards. (About ten minutes walk from the Convention Centre.)

Mercure Hotel Sydney on Broadway (818-820 George Street, PO Box 7082, Sydney 2000)
<http://www.accorhotels.com>

This four star hotel has 517 rooms, and is situated some 2 kms from the Convention Centre. Restaurant, coffee shop, swimming pool, parking available. AE, Visa, MC, Diners. (About a 20-25 minute walk).

UniLodge (Bay Street, Broadway, Sydney, NSW 2007)
<http://www.unilodge.com.au>

Excellent quality three and a half star budget accommodation, close to Central Station and a few minutes from the trendy Glebe restaurant district. It is a converted historical department store building (Grace Brothers), also close to Sydney University and theatres. The hotel is affiliated with the Best Western Group. Rooms with kitchenettes are available, and full size communal kitchens are available on all floors. It has a café, pool spa, sauna, gym, 24 hour convenience store, and ATM banking facility. Rooms have data ports for high speed internet access. AE, Visa, MC, BC, Diners cards accepted. (About 25-30 minutes walk from the Convention Centre. Public transport is available).

MORE INFORMATION

There is other useful information regarding Sydney and the GA, under Miscellaneous, in the Tours and Social Functions page on the GA Website, or in IB 91, the text of which can also be downloaded from the GA website.

Updated information will be provided in IB 93 (June 2003) and will be maintained at the website listed above and through the standard IAU website.

ADDRESSES

For inquiries concerning the scientific programme of the Symposia, Joint Discussions & Special Sessions held at the XXVth General Assembly, please see the contact addresses given, for each event, in Information Bulletin 91 (pp. 30-45) as well as on the following pages.

For inquiries concerning administrative matters and the general programme of scientific and other meetings held at the XXVth General Assembly, please contact:

Hans Rickman, General Secretary	Tel: 33 1 43 25 8358
International Astronomical Union (IAU)	Fax: 33 1 43 25 2616
98bis, bd Arago	E-mail: iau@iap.fr
FR 75014 Paris, France	URL: http://www.iau.org/

For all inquiries concerning registration and accommodation in Sydney, please contact:

ICMS Australasia Pty Ltd (IAU GA 25)	Telephone: 61 2 9241 1478
Level 9	Fax: 61 2 9251 3552
234 George Street	E-mail: iau-ga2003@icmsaust.com.au
AU Sydney NSW 2000, Australia	

For all inquiries concerning tour registrations, please contact:

The General Assembly Travel Office	Telephone: 61 2 9954 2600
ABN: 85 003 133 551	Fax: 61 2 9954 0421
C/- General Travel Australia	Email: iau@gtaus.com.au
Level 10, 33 Berry Street	
AU North Sydney NSW 2060, Australia	

OVERVIEW OF SCIENTIFIC PROGRAMME

INVITED DISCOURSES

ID 1	Gamma ray bursts	S. Kulkarni
ID 2	The formation of our Galaxy	K. Freeman
ID 3	From molecules to planets: A Milky Way dreaming	E. van Dishoeck

SYMPOSIA

- S 216 Maps of the Cosmos**
- S 217 Recycling Intergalactic & Interstellar Matter**
- S 218 Young Neutron Stars & their Environment**
- S 219 Stars as Suns: Activity, Evolution & Planets**
- S 220 Dark Matter in Galaxies**
- S 221 Star Formation at High Angular Resolution**

JOINT DISCUSSIONS

- JD 01 Non Electromagnetic Windows for Astrophysics**
- JD 02 Mercury**
- JD 03 Magnetic Fields & Helicity in the Sun & Heliosphere**
- JD 04 Astrophysical Impact of Abundances in Globular Cluster Stars**
- JD 05 White Dwarfs: Galactic & Cosmological Probes**
- JD 06 Extragalactic Globular Clusters & their Host Galaxies**
- JD 07 The Sun & the Heliosphere as an Integrated System**
- JD 08 Large Telescopes and Virtual Observatory: Visions for the Future**
- JD 09 Astrotomography**
- JD 10 Evolution in Galaxy Clusters: A Multiwavelength Approach**
- JD 11 Dynamics & Evolution of Dense Stellar Systems**
- JD 12 Solar & Solar-Like Oscillations: Insights & Challenges for the Sun & Stars**
- JD 13 Extragalactic Binaries**
- JD 14 Formation of Cometary Material**
- JD 15 Elemental Abundances in Old Stars & Damped Lyman- α Systems**
- JD 16 The International Celestial Reference System:
Maintenance & Future Realization**
- JD 17 Atomic Data for X-Ray Astronomy**
- JD 18 Quasar Cores & Jets**
- JD 19 Physical Properties & Morphology of Small Solar System Bodies**
- JD 20 Frontiers of High Resolution Spectroscopy**
- JD 21 The Astrochemistry of External Galaxies**

SPECIAL SESSIONS

- SPS 1 Recent Progress in Planetary Exploration**
- SPS 2 Astronomy in Antarctica**
- SPS 3 A New Classification Scheme for Double Stars**
- SPS 4 Effective Teaching & Learning of Astronomy**

SCHEDULE OF MAIN EVENTS (Cntd)

	HA1	HA2	P1	P2	HM3	HM4	TA	TM1	TM2	TB1	TB2	SK 3
Mon 21 : 1, 2												
Mon 21 : 3	\$ 219											
Mon 21 : 4	\$ 219	\$ 220										
----- Commission/Division meetings -----												
Tue 22 : 1	\$ 219	\$ 220		JD 14		\$ 221		JD 16		JD 17	JD 15	
Tue 22 : 2	\$ 219	\$ 220		JD 14		\$ 221		JD 16		JD 17	JD 15	
Tue 22 : 3	\$ 219	\$ 220		JD 14		\$ 221		JD 16		JD 17	JD 15	
Tue 22 : 4	\$ 219	\$ 220		JD 14		\$ 221		JD 16		JD 17	JD 15	
Tue eve								HA2 - Invited Discourse No. 3				
Wed 23 : 1	\$ 219	\$ 220		JD 18	JD 19	JD 20	\$ 221	JD 21				
Wed 23 : 2	\$ 219	\$ 220		JD 18	JD 19	JD 20	\$ 221	JD 21				
Wed 23 : 3	\$ 219	\$ 220		JD 18	JD 19	JD 20	\$ 221	JD 21				
Wed 23 : 4	\$ 219	\$ 220		JD 18	JD 19	JD 20	\$ 221	JD 21				
												Nom. Ctee, Fin. Ctee & Ntl Repr. Meetings
Thu 24 : 1	\$ 219	\$ 220		JD 18	SPS 3	JD 20	\$ 221	SPS 4				EC 77 (Cont'd)
Thu 24 : 2	\$ 219	\$ 220		JD 18	SPS 3	JD 20	\$ 221	SPS 4				EC 77 (Cont'd)
Thu 24 : 3, 4								HA 2 - GA 25 : 2 Closing				
Thu eve								GA Banquet				
Fri 25 : 1	\$ 219	\$ 220				\$ 221		SPS 4				EC 78 & DP;
Fri 25 : 2	\$ 219	\$ 220				\$ 221		SPS 4				EC 78 (Cont'd)
Fri 25 : 3		\$ 220				\$ 221		SPS 4				EC 78 (Cont'd)
Fri 25 : 4						\$ 221		SPS 4				EC 78 (Cont'd)
Sat 26 : 1												EC 78 (Cont'd)
Sat 26 : 2												EC 78 (Cont'd)
HA				Harbour side Auditorium 1-2				TA				Tumbalong Auditorium
P				Pyramont Meeting Rooms 1-2				TB				Tumbalong Ballrooms 1-2
HM				Harbour side Meeting Rooms 3-4				TM				Tumbalong Meeting Rooms 1-2
								SK 3				Skyline Room 3

UPDATES TO THE SCIENTIFIC PROGRAMME

SYMPOSIA

Symposium 216

MAPS OF THE COSMOS

July 14-17, 2003

For the scientific programme, please refer to IB 91, p. 30 (tinted pages)

Contact Address: L. Staveley-Smith, ATNF, CSIRO, P.O. Box 76, AU Epping NSW 1710, Australia
Tel: 61 2 9372 4271 - Fax: 61 2 9372 4310 - E-mail: Lister.Staveley-Smith@csiro.au

Symposium 217

RECYCLING INTERGALACTIC & INTERSTELLAR MATTER

July 14-17, 2003

Updates to the Scientific Programme:

Census of the IGM:

- Metal pollution in the IGM/ICM
- Intergalactic stellar populations
- Intergalactic HI clouds
- High Velocity Clouds

Invited speakers: Magda Arnaboldi, Hans Böhringer, Frank Briggs, Patrick Petitjean & Bart Wakker

Feeding the IGM:

- Starburst and AGN driven outflows
- Tidal interactions
- Ram pressure

Invited speakers: Françoise Combes, Andrea Ferrara, Chris Mihos, Jacqueline van Gorkom & Sylvain Veilleux

Recycling in the IGM:

- Re-accretion processes
- Induced star formation
- Tidal Dwarf Galaxies

Invited speakers: John Hibbard, Wil van Breugel & Bernd Vollmer

Contact Address: P.-A. Duc, Service d'Astrophysique, CEA Saclay, FR 91191 Gif-sur-Yvette, France

Tel: 33 1 69 08 92 68 - Fax: 33 1 69 08 65 77 - E-mail: paduc@cea.fr
web: http://alpha.uni-sw.gwdg.de/~paduc/IAUsymp/IAU_proposal.html

Symposium 218

YOUNG NEUTRON STARS & THEIR ENVIRONMENT

July 14-17, 2003

For the scientific programme, please refer to IB 91, p. 31 (tinted pages)

Contact Address: R.N. Manchester, ATNF, CSIRO, P.O. Box 76, AU Epping NSW 1710, Australia

Tel: 61 2 9372 4313 - **Fax:** 61 2 9372 4310 - **E-mail:** Dick.Manchester@csiro.au

IAU Symposium 219

STARS AS SUNS: ACTIVITY, EVOLUTION & PLANETS

July 21-25, 2003

For the scientific programme, please refer to IB 91, p. 31 (tinted pages)

Contact Address: A.O. Benz, Inst. of Astronomy, ETH, CH 8092 Zürich, Switzerland

Tel: 41 1 632 4223 - **Fax:** 41 1 632 1205 - **E-mail:** benz@astro.phys.ethz.ch

Symposium 220

DARK MATTER IN GALAXIES

July 21-25, 2003

Topics of the Scientific Programme:

How serious are the difficulties with CDM? 1: Central density cusps, thin disks and dark halo substructure

[Including the topics: high resolution numerical simulations; thin disk galaxies; the cores of Low Surface Brightness galaxies; gravitational lensing diagnostics; and dwarfs in the Galaxy and local group]

How serious are the difficulties with CDM? 2: The shapes and extent of dark halos

[Including the topics: the Galactic dark halo; dwarf galaxy halos; X-ray diagnostics; simulated dark halos; and gravitational lensing]

What role is played by baryonic dark matter?

[Including the topics: galaxy formation and baryonic dark matter; microlensing constraints; microwave constraints; and cold gas clouds]

Contact Address: M. Walker, School of Physics A28, Univ. of Sydney, AU Sydney NSW 20006, Australia

Tel: 61 2 9351 2546 - **Fax:** 61 2 9351 7726 - **E-mail:** m.walker@physics.usyd.edu.au

Symposium 221

STAR FORMATION AT HIGH ANGULAR RESOLUTION

July 22-25, 2003

For the scientific programme, please refer to IB 91, p. 32 (tinted pages)

Contact Address: M. Burton, School of Physics, Univ. of New South Wales, AU Sydney NSW 2052, Australia

Tel: 61 2 9385 5618 - **Fax:** 61 2 9385 6060 - **E-mail:** M.Burton@unsw.edu.au

JOINT DISCUSSIONS

Joint Discussion 01

NON ELECTROMAGNETIC WINDOWS FOR ASTROPHYSICS

July 16 & 17, 2003

For the scientific programme, please refer to IB 91, p. 33 (tinted pages)

Contact Address: M. Salvati, INAF - Osservatorio Astrofisico di Arcetri, Largo E. Fermi 5,
IT 50125 Firenze, Italy
Tel: 39 055 275 2312- Fax: 39 055 220 039 - E-mail: salvati@arcetri.astro.it

Joint Discussion 02

MERCURY

July 16, 2003

Topics of the Scientific Programme:

- Properties of Mercury's exosphere, surface & interior
- Mercury's interplanetary environment
- Theory of the formation of Mercury-like planets
- Ground-based Observations of Mercury
- Scientific gains from space missions to Mercury

Invited Speakers: Willy Benz (Switzerland), Johannes Brückner (Germany) (TBC),
Luciano Iess (Italy), Hiroshi Matsumoto (Japan), Andrew Potter (USA), Sean Solomon
(USA), Johan Waresell (Sweden)

Contact Address: N. Thomas, MPI für Aeronomie, Max-Planck-Str. 2, DE 37191
Katlenburg-Lindau, Germany
Tel: 49 5556 979 437 - Fax: 49 5556 979 141 - E-mail: thomas@linmpi.mpg.de

Joint Discussion 03

MAGNETIC FIELDS & HELICITY IN THE SUN & HELIOSPHERE

July 16, 2003

For the scientific programme, please refer to IB 91, p. 34 (tinted pages)

Contact Address: B. Schmieder, Observatoire de Paris, FR 92195 Meudon, France
Tel: 33 1 45 07 78 17 - Fax: 33 1 45 07 79 59 - E-mail: brigitte.schmieder@obspm.fr

Joint Discussion 04

ASTROPHYSICAL IMPACT OF ABUNDANCES

IN GLOBULAR CLUSTER STARS

July 16 & 17, 2003

For the scientific programme, please refer to IB 91, p. 34 (tinted pages)

Contact Address: F. D'Antona, Observatory of Rome, IT 00040 Monteporzio, Italy
Tel: 39 06 9428 6447 - Fax: 39 06 9447 243
E-mail: dantona@comamporzio.astro.it

Joint Discussion 05

WHITE DWARFS: GALACTIC & COSMOLOGICAL PROBES

July 16 & 17, 2003

For the scientific programme, please refer to IB 91, p. 35 (tinted pages)

Contact Address: H. Shipman, Dept. of Physics & Astronomy, Univ. of Delaware,
US Newark DE 19716, USA
Tel: 1 302 831 2986 - Fax: 1 302 831 1637 - E-mail: harrys@strauss.udel.edu

Joint Discussion 06**EXTRAGALACTIC GLOBULAR CLUSTERS & THEIR HOST GALAXIES**

July 17, 2003

*For the scientific programme, please refer to IB 91, p. 35 (tinted pages)***Contact Address:** T. Bridges, Anglo-Australian Observatory, P.O. Box 296, AU Epping NSW 1710, Australia**Tel.:** 61 2 9372 4839 - **Fax:** 61 2 9372 4880 - **E-mail:** tjb@aaoepp.aao.gov.au**Joint Discussion 07****THE SUN & THE HELIOSPHERE AS AN INTEGRATED SYSTEM**

July 17, 2003

*For the scientific programme, please refer to IB 91, p. 36 (tinted pages)***Contact Address:** G. Poletto, Oss. Astrofisico di Arcetri, Largo Enrico Fermi 5, IT 50125 Firenze, Italy**Tel.:** 39 055 275 2252 - **Fax:** 39 055 220 039 - **E-mail:** poletto@arcetri.astro.it**Joint Discussion 08****LARGE TELESCOPES & VIRTUAL OBSERVATORY: VISIONS FOR THE FUTURE**

New dates: July 17 & 18, 2003

*For the scientific programme, please refer to IB 91, p. 36 (tinted pages)***Contact Addresses:**

- Françoise Genova, Observatoire, 11 rue de l'Université, FR 67000 Strasbourg France
Tel.: 33 3 90 24 2476 - **Fax:** 33 3 90 24 2432 - **E-mail:** genova@astro.u-strasbg.fr
- Su Ding-Qiang Institute for Astronomical Optics & Technology, NAOC, CN Nanjing 210042, China PR
Tel.: 86 25 540 5562 - **Fax:** 86 25 540 5562 - **E-mail:** dqsu@nairc.ac.cn

Joint Discussion 09**ASTROTOMOGRAPHY**

July 17, 2003

Organized by Division V - Participating Commissions: 28, 29 & 42*Update in the Scientific Organizing Committee:* R. Baptista (Brazil), V. Dhillon (UK), J-F. Donati (France), E. Harlaftis (Greece), L. Morales Rueda (UK), B. Peterson (USA), N. Piskunov (Sweden), M. Richards (USA), A. Schwoppe (Germany) & S. Isaacs (Germany, Chair)*Update for the Editors of Proceedings:* S. Isaacs (Chief Ed.), A. Collier Cameron & A. Schwoppe*For the scientific programme, please refer to IB 91, p. 37 (tinted pages)**Update for the Contact Address:* S. Isaacs, born Vrielmann, Hamburger Sternwarte, Gojenbergsweg 112, DE 21029 Hamburg Germany**Tel.:** 49 40 42891 4020 - **Fax:** 49 40 42891 4198 - **E-mail:** svrielmann@hs.uni-hamburg.de

Joint Discussion 10: Please note the new title**EVOLUTION IN GALAXY CLUSTERS: A MULTIWAVELENGTH APPROACH***New dates: July 17 & 18, 2003*

Changes in the Scientific Organizing Committee: Ray Carlberg (Canada), Warrick Couch (Australia), Luigina Feretti (Italy, co-chair), Brad Gibson (Australia), Richard Hunstead (Australia, chair), Guinevere Kauffmann (Germany), Lori Lubin (USA), George Miley (The Netherlands), Paul Nulsen (Australia), Takaya Ohashi (Japan), Peter Thomas (UK)

Update of the Scientific Programme :

Cluster formation & evolution

optical and X-ray data, substructure	mergers and accretion
cold fronts and shocks	simulations and link to LSS

Cluster galaxies

stellar populations	central star formation
starbursts (Butcher-Oemler effect)	radio galaxy populations

Intracluster medium

cavities and cooling flows	inverse Compton emission
haloes, relics and mini-haloes	magnetic fields
models	

Contact address: R.W. Hunstead, School of Physics, Univ. of Sydney, AU Sydney NSW 206, Australia

Tel.: 61 2 9351 3871 - *Fax:* 61 2 9351 7726 - *E-mail:* rw@physics.usyd.edu.au

Joint Discussion 11**DYNAMICS & EVOLUTION OF DENSE STELLAR SYSTEMS****July 18, 2003**

Update of the Scientific Programme :

Overview	Rainer Spurzem
MODEST: Modeling stellar evolution and (hydro)dynamics	Piet Hut
Galactic Nuclei	
Formation	Ken Freeman
Demography	Karl Gebhardt
Black hole mergers	Jun Makino
Influence on host	Kelly Holley-Bockelmann
Influence of gas	Mike Dopita
Old Clusters	
Formation history	Francois Schweizer
Environment	Holger Baumgardt
Young clusters	
Formation	Bruce Elmegreen
The Distribution of massive stars in the young clusters:	Yuri Efremov
primordial or gained?	
Super star clusters	Richard de Grijs
Evolution/environment	Simon Portegies Zwart
Survival	Pavel Kroupa

Contact Address: Françoise Combes, Observatoire de Paris, LERMA, 61 Ave Observatoire, FR 75014 PARIS, France

Tel.: 33 1 40 51 2077 - *Fax:* 33 1 4051 2002 - *E-mail:* Francoise.Combes@obspm.fr

Joint Discussion 12
SOLAR & SOLAR-LIKE OSCILLATIONS:
INSIGHTS & CHALLENGES FOR THE SUN & STARS
July 18 & 19, 2003

For the scientific programme, please refer to IB 91, p. 38-39 (tinted pages)

Contact Address: T.R. Bedding, School of Physics A28, Univ. of Sydney, AU Sydney NSW 2006, Australia
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Joint Discussion 13
EXTRAGALACTIC BINARIES
New dates: July 17 & 18, 2003

For the scientific programme, please refer to IB 91, p. 39 (tinted pages)

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Joint Discussion 14
FORMATION OF COMETARY MATERIAL
July 22, 2003

For the scientific programme, please refer to IB 91, p. 40 (tinted pages)

Contact Address: W.F. Huebner, Southwest Research Institute, P.O. Drawer 28510, US San Antonio TX 78228-0510, USA
Tel: 1 210 522 2730 - **Fax:** 1 210 543 0052 - **E-mail:** whuebner@swri.edu

Joint Discussion 15
ELEMENTAL ABUNDANCES IN OLD STARS
& DAMPED LYMAN-ALPHA SYSTEMS
July 22, 2003

Update of the Scientific Programme

Introduction	Poul E. Nissen (Denmark)
Overview of abundances in old stars and DLAs	Jason X. Prochaska (USA)
Abundances in Local Group galaxies	Kim Venn (USA)
Uncertainties in stellar abundance analyses	Martin Asplund (Australia)
Chemical evolution of galaxies	Francesca Matteucci (Italy)
Nucleosynthesis in the first stars	Ken'ichi Nomoto (Japan)
The nature of DLAs and their relevance to star formation at high redshift	S. Michael Fall (USA) (TBC)
Summary and perspectives	David L. Lambert (USA)

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Joint Discussion 16**THE INTERNATIONAL CELESTIAL REFERENCE SYSTEM:
MAINTENANCE & FUTURE REALIZATION**

July 22, 2003

*For the scientific programme, please refer to IB 91, p. 41 (tinted pages)***Contact Address: F. Mignard, CERGA, Av Copernic, FR 06130 Grasse, France
Tel: 33 4 93 40 53 82 - Fax: 33 4 93 40 53 33 - E-mail: mignard@obs-azur.fr****Joint Discussion 17****ATOMIC DATA FOR X-RAY ASTRONOMY**

July 22, 2003

Participating Commissions: 14 & 44*Change in the Scientific Organizing Committee: N. Brickhouse (USA), J. Dubau (France), A. Fabian (UK), H. Hasan (USA), J. Houck (USA), J. Kaastra (Netherlands), S. Kahn (USA), T. Kallman (USA), F. Keenan (UK), H. Netzer (Israel), K. Phillips (UK), A.K. Pradhan (USA, Chair), P.L. Smith (USA) & Y. Yamashita (Japan)**Change in the Editors of Proceedings: A.K. Pradhan (Chief Ed.) & P.L. Smith**For the scientific programme, please refer to IB 91, p. 41 (tinted pages)***Contact Address: A. Pradhan, Dept. of Astronomy, Ohio State Univ., US Columbus OH 43210-1106, USATel: 1 614 292 5850 - E-mail: pradhan@astronomy.ohio-state.edu
<http://www.astronomy.ohio-state.edu/~pradhan>****Joint Discussion 18****QUASAR CORES & JETS**

July 23, 2003

*For the scientific programme, please refer to IB 91, pp. 41-42 (tinted pages)***Contact Address: D.L. Jauncey, ATNF, CSIRO, P.O. Box 76, AU Epping NSW 1710, Australia, Tel: 61 26216 7220 - Fax: 61 26216 7222 - E-mail: djauncey@atnf.csiro.au****Joint Discussion 19****PHYSICAL PROPERTIES & MORPHOLOGY
OF SMALL SOLAR SYSTEM BODIES**

July 23, 2003

Organized by Division III - Participating Commissions: 7, 15, 16 & 22*Update of the Scientific Organizing Committee: A. Cellino (Italy), G. Cremonese (Italy), D. Cruikshank (USA), W.F. Huebner (USA), C. Keay (Australia), H.U. Keller (Germany, Co-Chair), A. Milani (Italy), V. Porubcan (Slovakia) & E.F. Tedesco (USA, Co-Chair)*

*Update of the Scientific Programme:***Results from Fly-By & Rendezvous Missions (Morning)***Session 1: Past Missions***Asteroids**

Galileo (243 Ida & 951 Gaspra)	TBD (USA)
NEAR (253 Mathilde & 433 (Eros))	A. Cheng (USA)
DS-1 (9969 Braille)	R. Nelson (USA)

Comets

Giotto (Halley)	H.U. Keller (Germany)
DS-1 (19P/Borrelly)	R. Nelson (USA)

*Session 2: Future Missions***Asteroids**

MUSES-C	A. Fujiwara (Japan)
Dawn	C. Russell (USA)
GAIA	F. Mignard (France)

Comets

Rosetta	R. Schulz (Netherlands)
Deep Impact	M.A'Hearn (USA)

Results from Ground-Based & Earth Orbiting Missions (Afternoon)*Session 3: Asteroids*

IRAS	E. Tedesco (USA)
ISO	T. Müller (Germany)
Ground-Based	A. Cellino (Italy)

Session 4: Comets

IRAS	M. Skies (USA)
ISO	J. Crovisier (France)
Ground-Based	M.A'Hearn (USA)

Synthesis

Leveraging Close-up Spacecraft & Remote Sensing Observations	Panel Discussion
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Contact Address: E.F. Tedesco, TerraSystems Inc., Space Science Research Division,
59 Wednesday Hill Rd, US Lee NH 03824 6537
Tel: 1 603 359 5620 - **Fax:** 1 603 359 2982 - **E-mail:** etedesco@terrasys.com

Joint Discussion 20**FRONTIERS OF HIGH RESOLUTION SPECTROSCOPY**

July 23, 2003

For the scientific programme, please refer to IB 91, pp. 42-43 (tinted pages)

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80309-0440, USA
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Joint Discussion 21

THE ASTROCHEMISTRY OF EXTERNAL GALAXIES

July 23, 2003

Contact Address: T.J. Millar, Dept. of Physics, UMIST, P.O. Box 88,
 GB Manchester M60 1QD, UK
 Tel: 44 161 2000 3677 - Fax: 44 161 200 4303 - E-mail: Tom.Millar@umist.ac.uk

Update of the Scientific Programme:

Molecular Emission Lines at High Redshifts	P. Cox (France)
Extragalactic OH Megamasers	J. Darling (USA)
H ₂ Absorption Lines in Galaxies	P. Petitjean (France)
Molecular Line Observations of the Magellanic Clouds	M. Rubio (Chile)
Molecular Absorption Lines in Galaxies	T. Wiklind (USA)

SPECIAL SESSIONS

Special Session 1

RECENT PROGRESS IN PLANETARY EXPLORATION

New dates: July 17 & 18, 2003

For the scientific programme, please refer to IB 91, p. 44 (tinted pages)

Contact Address: D.P. Cruikshank, MS 245-6, NASA Ames Research Center, US Moffett
 Field CA 94035-1000, USA
 Tel: 1 650 604 4244 - Fax: 1 650 604 6779 - E-mail: dcruikshank@mail.arc.nasa.gov

Special Session 2

ASTRONOMY IN ANTARCTICA

New date: July 18

Update of the Scientific Programme:

Session 1. Overview of Astronomy in Antarctica

Review The potential for astronomy in Antarctica	Michael Burton
Review Photon astronomy from Antarctica	Al Harper
Review Particle astronomy from Antarctica	Per-Olof Hulth
Plans The total solar eclipse of 23 November, 2003	Jay Pasachoff

Session 2. Infrared and Sub-millimetre Astronomy

Results Site testing and automation	Michael Ashley
Results MM site testing results and plans	Giorgio Dall'Oglio
Results Infrared	Jill Rathborne
Results Sub-millimetre	Chris Marton
Results Sub-mm / CMBR	Jeff Peterson

Session 3. CMBR and High Energy Astrophysics

Results Balloon-borne CMBR	Paolo de Bernardis
Results Ice-based CMBR	John Kovac
Results Cosmic Ray astronomy	Marc Duldig
Plans Balloon-borne neutrino astronomy	Peter Gorham
Review South Pole Station development	Vladimir Papitashvili
Review Concordia Station development	Head, Dome C Steering Committee

Session 4. The Future of Astronomy in Antarctica

Plans Planet search
 Plans Astro-seismology
 Plans The SPT
 Plans IRAIT
 Plans From AMANDA to Ice Cube
 Plans Beyond Dome C

Doug Caldwell
 Eric Fossat
 John Carlstrom
 Maurizio Busso
 Francis Halzen
 John Storey

Contact Address: M. Burton, Joint Australian Centre for Astrophysical Research in Antarctica, School of Physics, Univ. of New South Wales, AU Sydney NSW 2052, Australia
 Tel: 61 2 9385 5618 - Fax: 61 2 9385 6060 - E-mail: [M. Burton@unsw.edu.au](mailto:M.Burton@unsw.edu.au)

Special Session 3**A NEW CLASSIFICATION SCHEME FOR DOUBLE STARS**

July 24, 2003

For the scientific programme, please refer to IB 91, p. 45 (tinted pages)

Contact Address: B.D. Mason, USNO, 3450 Massachusetts Av. NW, US Washington DC 20392, USA
 Tel: 1 202 762 1412 - Fax: 1 202 762 1516 - E-mail: bdm@draco.usno.navy.mil

Special Session 4**EFFECTIVE TEACHING & LEARNING OF ASTRONOMY**

July 24 & 25, 2003

For the scientific programme, please refer to IB 91, p. 45 (tinted pages)

Contact Address: J.R. Percy, Science Division, Erindale College, Univ. Toronto, CA Mississauga ON L5L 1C6, Canada
 Tel: 1 905 828 5351 - Fax: 1 905 828 5425 - E-mail: jpercy@utm.utoronto.ca

8. EDUCATIONAL ACTIVITIES**8.1. OVERVIEW**

Commission 46 is mainly composed of National Liaisons from member countries. They usually present national reports for these three years. All the reports are published in the Commission 46 Newsletter and are seen on its webpage <http://physics.open.ac.uk/IAU46>.

Action Team 17 "Capacity Building", a follow-up activity of UNISPACE III, continues to work with Japan as leading country (ref. IB 91 pp. 53-54). At the June meeting of the UN Committee on the Peaceful Uses of Outer Space, it was decided to have further detailed discussions during the World Space Congress, Houston, 15 October 2002. Its IAU representative will attend to introduce the IAU Commission 46 Program Groups' activities. It is expected to have some conclusions within a year or so.
 Syuzo Isobe, President of Commission 46

8.2. PG ON TEACHING FOR ASTRONOMY DEVELOPMENT (TAD)

Report on activities, January-September 2002:

Central America

In Nicaragua, astronomy is developing as a teaching subject within the School of Physics

at the National University of Nicaragua, Managua. TAD provided a CCD and set of filters for the new 20-cm telescope.

In Costa Rica, the School of Physics of the University of Costa Rica, San Jose, is developing an observatory at altitude 3442 meters. TAD is supporting development of a students' solar observing program, at first by sending Ms. Lela Taliashvili to Meudon, France, both to up-date her experience and to progress toward her solar-oriented doctorate.

In Honduras, TAD supported travel of delegates and one foreign faculty member toward the Seventh Central American Course on Astronomy, held July 29 - August 2, 2002 in Tegucigalpa.

Jay White (assistant chairperson for TAD) briefly visited Prof. Jorge Paez (Costa Rica), president of the Central American Astronomical Assembly (the organization adhering to the IAU), in order to discuss the most useful support by TAD for future astronomy development in Central America.

Morocco

TAD supported travel for one student from Morocco to Italy, where he attends a one-year master course Space Systems on Earth Observation, and for Mr. Stuart Keir (U.K.) to visit and advise on computing. TAD supported six students to attend the Second International School of Plasma Physics held in Casablanca.

A second university is about to join the TAD program in Morocco. It is Alakhawayn University in the town of Ifrane, with astronomy interests in its Engineering and other programs.

Several TAD-supported visiting lecturers are expected to visit both Casablanca and Ifrane.

Vietnam

For Hanoi Pedagogical University, TAD supported the rebuilding of the pedestal of the 45-cm telescope.

The Pedagogical University in Ho Chi Minh City has received a 20-cm telescope and CCD through the support of Prof. Y. Kozai and Gunma Astronomical Observatory, Japan. TAD has supported the travel of Mrs. Tran Quoc Ha and her astronomy teaching assistant Mr. Cao Anh Tuan to Gunma Observatory for observational training so as to make the telescope an effective teaching tool.

General

Books, journals, teaching aids and aids for computing have been provided to several TAD-supported institutions.

Philippines

A new TAD program is expected to provide astronomical training of the staff of the Astronomy Research and Development Section (which includes public outreach) of PAGASA, the Philippine national weather agency, including a program to use the new 45-cm telescope (with CCD etc.) donated by the Government of Japan.

Donat G. Wentzel, Chairman of the Program Group

8.3. PG ON INTERNATIONAL SCHOOLS FOR YOUNG ASTRONOMERS

26th ISYA, Argentina, 12-30 August 2002

On behalf of the Facultad de Ciencias Astronómicas y Geofísicas de la Universidad Nacional de La Plata, Argentina, the organization of the 26th International School for Young Astronomers took place at the Complejo Astronómico El Leoncito (CASLEO), San Juan (altitude 2500 m) the major Argentinian National Observatory, under the direction of Prof. Nidia Morrell.

This ISYA could be organized due to special grants by IAU and UNESCO-Paris. For the first time, the participants to an ISYA could do observations using a 2.15 m telescope thanks to the allocation of time by the Scientific Committee of CASLEO. Dr. Hugo Levato, director of CASLEO, made possible the organization of the ISYA at this observatory. The number of participants was 28: 14 foreign (2 female, 12 male) from: Brazil, Cuba, Ecuador, Honduras, Nicaragua, Peru, Uruguay, Venezuela and 14 Argentinian (8 female, 6 male). The background of these 28 participants, ranged from finishing their Licenciado degree (nearly equivalent to a MSci. degree) or having started their PhD about one year ago. Spanish/English was the language of the ISYA.

The following topics were covered:

- Introduction to Galaxies
Maria Victoria Alonso (OAC, Córdoba, Argentina & Observatoire Midi-Pyrénées, Toulouse, France)
- Active Galactic Nuclei
Itziar Aretxaga (INAOE, Tonantzintla, Mexico)
- Astronomy with Large Astronomical Databases
Rodolfo Barba (FCAG, La Plata, Argentina)
- Star Forming Regions
Guillermo Bosch (FCAG, La Plata, Argentina)
- Topics in Theoretical Galactic Dynamics
Pablo Cincotta (FCAG, La Plata, Argentina)
- Dynamics of Extrasolar Planetary Systems
Sylvio Ferraz Mello (IAG, Sao Paulo, Brazil)
- Cosmology
Diego García Lambas (OAC, Córdoba, Argentina)
- Stellar Astrophysics
Michèle Gerbaldi (IAP, Paris, France)
- Binaries, The Sun
Ed Guinan (Villanova University, USA)
- High Energy Astrophysics
Mariano Mendez (SRON, The Netherlands)
- Observation and data reduction
Nidia Morrell (FCAG, La Plata, Argentina)

A network of computers under LINUX was set up for the practical activities with specialized software packages for the reduction and analysis of optical (IRAF) and X-ray (XSPEC) observations. An observing program has been set up in order to make comprehensive observations. BVRI photometry and intermediate resolution spectroscopy in a selected area were done. Data reductions and analysis of the photometric and spectroscopic observations were done during the practical activities.

Michèle Gerbaldi, Chairperson for the ISYA

8.4 PG ON PUBLIC EDUCATION AT THE TIME OF SOLAR ECLIPSES

The Program Group provides information and advice about safe observation of partial, annular, and total solar eclipses and can try to help publicize astronomy in general when a country's attention is focused on astronomy by the approach of an eclipse. It maintains a Web page for the general public at www.eclipses.info. During the first part of 2002, it added links to observations of the annular eclipse of 14 December 2001, which was

annular in Costa Rica and partial for hundreds of miles north and south, and provided information for the safe observation of the annular eclipse of 10 June 2002, whose partial phases extended from eastern Asia and northwestern Australia to the western United States, and the total eclipse of 4 December 2002, which will cross southern Africa and south-central Australia.

Jay M. Pasachoff, Chairman of the Program Group

9. PROTECTION OF OBSERVATORY SITES

9.1. SPECTRUM MANAGEMENT AND RADIO ASTRONOMY

Advances in technology are placing increasing pressure on the radio spectrum as a financial resource. Multinational companies, as well as some governments, are planning ever more constellations of Earth-orbiting satellites, each with the potential to earn billions of dollars per Megahertz of spectrum. Radio astronomers need their Megahertz too, but do not make a financial profit. Unwanted emissions from satellites can block frequency bands allocated for radio astronomy, compromising their usefulness for front-line research.

The International Telecommunication Union (ITU) is the body which regulates use of the radio spectrum, so that radio users can coexist. However the ITU is in danger of being overwhelmed. The multinational companies have the resources to propose constellation after constellation until they succeed. They can send large numbers of delegates to ITU meetings, often on national delegations, and so outnumber the regulators and small players such as radio astronomers. For example, at the February 2002 meeting of the ITU-R Working Party 7D on radio astronomy there were 50 delegates, only 12 of whom had ever used a radio telescope.

This serious situation has developed dramatically in just a few years. During this time the radio astronomy community has done what it could with the resources available, but we need more resources for this work and more participation. It is not just a question of money. Part of the problem is the shortage of skilled spectrum managers for radio astronomy, who can function effectively in the ITU circles.

In order to address this shortage, a summer school on "Spectrum Management and Radio Astronomy" was held on June 9-14th at the National Radio Astronomy Observatory in Green Bank, West Virginia, home of the Robert C. Byrd Greenbank Telescope. The school, the first of its kind, was organized by IUCAF, the Scientific Committee on Frequency Allocations for Radio Astronomy and Space Science. By any criterion, the school was a great success. There were 45 participants from 12 countries; 23 from the USA and 22 from elsewhere. Some 35 formal lectures were presented during the week, and there were also hardware demonstrations by Green Bank staff and a tour of the new facilities. Details of the Summer School, including most of the Power Point presentations, are available on the IUCAF website <http://www.iucf.org/school>. The lectures will be compiled into a book, to be printed by NRAO. The intention is to repeat the Summer School on a 3-year cycle and so train the new generation of spectrum managers for radio astronomy.

Jim Cohen, President, Commission 50

9.2. WG ON LIGHT POLLUTION

Priorities for Protection of Existing and Potential Astronomical Sites from Light Pollution

A small working group of a dozen individuals, most working part time, obviously cannot take on the whole, planetary-wide responsibility for controlling light pollution alone. Key elements of the approach by this group therefore include:

- Form alliances to cover as much of the ground as possible,
- Choose areas where the group's expertise and experience can be most valuable and
- Set clear priorities for pragmatic action at sites chosen for their existing and potential value to world-wide, ground-based astronomy.

Form alliances to cover as much of the ground as possible

To cover as much ground as possible, members of the International Dark Sky Association (IDA) who are also members of our IAU Working Group have been encouraging heavy use of the world-wide web. The IDA web page <http://www.darksky.org> has become the world's leading source of information on controlling light pollution. Most of the IDA web-based material is in English. This helps get the message out world-wide, and in particular to educators and authorities having control over areas around prime observatory sites in Hawaii and the Southwest United States.

The WG currently gives highest priority to protection of Mauna Kea (<http://www.cfht.Hawaii.edu/ObsInfo/IslandLights/>) and of the northern part of Chile, particularly a wide East-West strip stretching across the country between Cerro Paranal and the ALMA site in the Chajnantor plateau area (<http://www.opcc.cl>).

The group has also been working with the U.S. New Initiatives Office (NIO) "Sites" program which is seeking suitable locations for new Extremely Large Telescopes (ELTs) in the 30-100 m diameter range, and we are also beginning to work more closely with ESO's search for a "Nest for the OWL" (ESO's 100 m Overwhelmingly Large telescope).

Choose areas where the group's expertise and experience can be most valuable

Several members of the group have special expertise and experience in education. Their work is usually reported in more detail elsewhere (by Commission 46) but opportunities for including light pollution along with astronomy as sources of appealing multidisciplinary material have already proven valuable in various countries (<http://www.ctio.noao.edu/~emond/lpc/m-metaxa.pp3>).

Videoconferencing experiments in education development involving astronomers, teachers and pupils are currently underway between Chile and various parts of the United States - especially where major observatories are installed. These are building on existing and new national and regional education networks. Light pollution themes have been introduced into the netd@ys Europe program.

The main priorities for future work by the group are:

- Seek ways to support the production of a "Second World Atlas of the Artificial Night Sky Brightness" (<http://xxx.lanl.gov/abs/astro-ph/0003412>).
- Investigate the consequences of the International Telecommunications Union (ITU) becoming involved in the regulation of frequencies between 20 and 375 THz (15 microns and 0.8 microns, the infrared and (red) optical spectrum).
- Seek how best to combine these initiatives with work being done by the IAU in conjunction with the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS).
- Seek ways to monitor the artificial night sky brightness from key existing and potential

observatory sites, as a complement to the modeling of satellite-based measurements.

- Develop more quantitative experience on financial savings from the use of quality lighting in regions around key existing and potential observatory sites.
- Extend international educational outreach programs based around light pollution including teacher exchanges and the use of videoconferencing

With the increased pressure for use of the radio spectrum and the advancement of technology, more attention is being given to the use of frequencies above 3,000 GHz for free space telecommunications. Telecommunication links have become a reality in the frequency bands above 3,000 GHz as a result of many recent technological developments in optical communication devices. The IAU has so far been seeking to work mainly with the United Nations Committee on the Peaceful Uses of Outer Space (UN-COPUOS) in controlling the increasing number of potentially serious sources of light pollution from space. Our WG has begun to consult with Commission 50 and the central IAU authorities concerning an appropriate response to the ITU initiatives. As viewed from the perspective of at least some members of the US Working Party 7D:

- The emissions from space will occur.
- They will either be regulated by the ITU (which has looked after radio astronomy fairly well) or by some unknown third party with a weaker or non-existent track record in achieving at least some degree of rational control and sharing of the electromagnetic spectrum.
- They will not be regulated at all.

Representatives of the Working Party firmly believe that the best course of action is for the IAU and its Working Groups to join with them to seek to optimize use of this part of the spectrum long before it becomes a more serious issue.

10. RELATIONS TO OTHER ORGANIZATIONS

The present report will have to be brief. The action teams set up by UN/COPUOS for follow-up of some Vienna Declaration items are active at various levels, and I'm glad to say that the one on Capacity Building (item 17) is working hard (see §. 8.1). At the recent World Space Congress II in Houston TX, including the 34th COSPAR Scientific Assembly, the IAU was well represented by at least your GS, the Division II and III Presidents, and several Commission Officers in addition to a large number of IAU Members. I found the event well organized with a lot of interesting science presentations.

Unfortunately, none of the proposals that the IAU submitted to ICSU was successful, but we are very glad that ICSU supported the 2nd COSPAR/IAU Capacity-Building Workshop in X-Ray Astronomy, which is held at Udaipur, India, by the time this IB reaches you. Another workshop, where the IAU participates and has helped in the organization, is held at nearly the same time under the auspices of the OECD, and the subject is the Near Earth Object impact hazard. Politicians from the OECD member states will discuss with scientists how society should deal with this hazard, and what further measures should be taken to study and, eventually, mitigate it.

11. MEMBERSHIP

The General Secretary regrets to report the names of former and current IAU members whose death has been communicated to the Secretariat since the previous list published in IB 91:

Cabrera Ezequiel	Souffrin Pierre	Wilkinson David T
Gardner Francis F	Uchida Juichi	Wilson Robert
Greenstein Jesse L	Westfold Kevin Charles	Wright K O

12. ANNOUNCEMENTS

12.1. PGF COSMOLOGY PRIZE 2003

Nominations for the 2003 Cosmology Prize, which will be awarded in connection with the opening session of GA XXV in Sydney, are hereby invited. These may be submitted by individuals, organizations and institutions, comprising individual IAU Members and astronomical institutions. For this purpose a nomination form, available via <http://www.iau.org/Activities/cosprize.html>, should be used. The deadline for receipt at the PGF Office is January 30, 2003.

Nominators should also include a concise letter of motivation and brief description of the nominee's achievements in addition to the required data in the form.

12.2. THE PETER GRUBER FOUNDATION FELLOWSHIPS

Thanks to funding from the PGF, the IAU is pleased to announce the availability of two fellowships to be awarded during the triennium between the XXVth and XXVIth General Assemblies (2003-2006). Each fellowship amounts to USD 37,500 and will be given as a stipend covering travel, subsistence and research expenses during a postdoctoral appointment for a period which is typically of one year duration but may be extended to two years. The awards will be given to extremely promising, young astrophysicists working in any field of astrophysics - either theoretical, observational or experimental. There are no limitations on the nationality, but preference will be given to applicants from countries in difficult economic conditions.

The host institution of the postdoctoral appointments shall be a center of excellence in the applicant's field of research, located in a country different from that of the applicant's current country of residence. The host institution must agree to administer the stipend and to offer the basic facilities such that the PGF stipend is not used as a replacement for those. The stipend is primarily intended to cover living and research expenses, but upon agreement between the host institution and the IAU, part of it can also be used for salary. Applications for PGF Fellowships to be awarded in 2003 are hereby invited. They must contain (a) a research plan for the period during which the stipend will be used, and a draft budget for the use of the money; (b) a CV with a list of publications; (c) letters of support from 2-4 people who know the applicant's work; (d) a letter of acceptance from the host institution. These should be submitted to the IAU Secretariat with a strict deadline for receipt on 30 April 2003. Applicants will be notified about the outcome before 31 May 2003, and the selected PGF Fellows and their host institutions will be announced during GA XXV in Sydney as well as in a forthcoming issue of the IAU Information Bulletin.

12.3. CONGRATULATIONS FOR THE NOBEL LAUREATES IN PHYSICS 2002

The Swedish Royal Academy of Science has awarded the 2002 Nobel Prize in Physics, recognizing the importance of opening new windows in the study of cosmic phenomena. Indeed the Prize is shared between Riccardo Giacconi, Raymond Davis Jr. and Masatoshi Koshiba. The first has been a leading figure in the birth and development of X-ray astronomy; the others have done the same for neutrino astronomy. Our knowledge of the Universe and its physical laws has improved enormously with these developments.

We are sure to interpret the feelings of the international astronomical community by expressing our warmest congratulations to the 2002 winners of the Nobel Prize in physics.

Franco Pacini and Hans Rickman

12.4. NAMES ASSIGNED FOR THE 11 RECENTLY DISCOVERED SATELLITES OF JUPITER.

The Working Group on Planetary System Nomenclature has assigned the names listed below to 11 recently discovered satellites of Jupiter. The satellites are listed in order of increasing distance, while the Roman numerals are in order of recovery announcement.

The source of the 11 new satellite names is the entourage of Zeus or Jupiter in Greco-Roman mythology. The names follow the tradition of the names on the other satellites of Jupiter. For the outer satellites the convention is that the satellites in direct orbits have names (mainly Latin) ending in -a, and the satellites in retrograde orbits have names (mainly Greek) ending in -e. The last ten satellites in the current list are thus all in retrograde orbits. The first satellite, Themisto, is separate from these two groups being closer to Callisto; hence its name ending in -o.

Temporary Designation	Roman Number	Name	MPC Nb.
S/1975 J1	XVIII	Themisto	44862
S/2000 J3	XXIV	Iocaste	44032
S/2000 J5	XXII	Harpalyke	44862
S/2000 J7	XXVII	Praxidike	44506
S/2000 J9	XX	Taygete	43760
S/2000 J10	XXI	Chaldene	43761
S/2000 J2	XXIII	Kalyke	44862
S/1999 J1	XVII	Callirrhoe	44862
S/2000 J8	XIX	Megacite	44862
S/2000 J6	XXVI	Isonoe	44506
S/2000 J4	XXV	Erinome	44033

13. IAU PUBLICATIONS

13.1. HIGHLIGHTS OF ASTRONOMY

Vol. 12, As presented at the XXIVth GENERAL ASSEMBLY of the IAU-2000

Ed. H. Rickman, ISBN 1-58381-086-2

13.2. IAU SYMPOSIA

207 Extragalactic Star Clusters

Eds. D. Geisler, E.K. Grebel & D. Minniti

Pucon, Chile, March 12-16 2001

Astronomical Society of the Pacific, ISBN 1-58381-115-X, 2002

Eds. H. Inoue & H. Kunieda, ISBN 1-58381-091-9 (HB), 2002

14. OTHER MEETINGS ON ASTRONOMICAL TOPICS

XXI Texas Symposium on Relativistic Astrophysics

December 9-13, 2002, Florence, Italy

Contact: LOC, Arcetri Astrophysical Observatory, Largo E. Fermi 5, IT 50125 Firenze, Italy

Tel.: 39 055 2752232 Fax: 39 055 220039 - E-mail: texas_florence@arcetri.astro.it

Gravitational Lensing: A Unique Tool for Cosmology

January 05-11, 2003, Aussois, Savoie, France

Contact: J.P. Kneib & D. Valls-Gabaud, CNRS, Observatoire Midi-Pyrénées,
14 Avenue E. Belin, Toulouse, 31400 FranceTel.: 33 5 61 33 29 46 - Fax: 33 5 61 33 28 40 - E-mail: lensing2003@ast.obs-mip.fr**The Baryonic Universe**

January 12-18, 2003, Aspen, Colorado

Contact: Rosemary Wyse, Johns Hopkins University, 3400 N. Charles Street,
US Baltimore, MD 21218, USATel.: 1 410 516 5392 - Fax: 1 410 516 5960 - E-mail: wyse@pha.jhu.edu**Carnegie Observatories Centennial Symposium III: Clusters of Galaxies:
Probes of Cosmological Structure & Galaxy Evolution**

January 26-31, 2003, Carnegie Observatories, Pasadena, CA, USA

Contact: John Mulchaey, Carnegie Observatories, 813 Santa Barbara Street, Pasadena,
CA 91101, USATel.: 1 626 304 0257 - Fax: 1 626 795 8136 - E-mail: jmulchaey@ociw.edu**Globular Clusters: Formation, Evolution & the Role of Compact Objects**January 27-31, 2003, Kavli Institute for Theoretical Physics, Santa
Barbara, CaliforniaContact: Susan Alemdar, Kavli Institute for Theoretical Physics,
Kohn Hall, UCSB, US Santa Barbara, CA 93106, USATel.: 1 805 893 5422 E-mail: sue@itp.ucsb.edu**Origin & Evolution of the Elements**

February 16-21, 2003, Carnegie Observatories, Pasadena, USA

Contact: Andrew McWilliam & Michael Rauch, Carnegie Observatories,
813 Santa Barbara Street, US Pasadena, CA 91101, USATel.: 1 626 304 0249 - Fax: 1 626 795 8136 - E-mail: andy@ociw.edu**34th Lunar & Planetary Science Conference**

March 17-21, 2003, League City, Texas, USA

Contact: Paula Walley, Lunar & Planetary Institute,
3600 Bay Area Boulevard, Houston, US TX 77058 113, USATel.: 1 281 486 2144 - Fax: 1 281 486 2160 - E-mail: walley@lpi.usra.edu**The Davis Meeting on Cosmic Inflation**

March 22-26, 2003, Davis, CA

Contact: Andreas Albrecht, UC Davis Dept. of Physics, One Shields Ave.,
US Davis, CA 95616, USATel.: 1 530 752 1500 - Fax: 530 752 4717 - E-mail: albrecht@physics.ucdavis.edu**Effects of Space Weather on Technology Infrastructure (ESPRIT)**

March 25-29, 2003, Rhodes, Greece

Contact: Yannis Daglis

Tel.: 30 10 810 9185 - Fax: 30 10 613 8343 - E-mail: daglis@space.noa.gr**Open Issues in Local Star Formation & Early Stellar Evolution**

April 5-10, 2003, Ouro Preto, MG - BRAZIL

Contact: Jane Gregorio Hetem, Universidade de Sao Paulo, Rua do Matao, 1226,
Cidade Universitaria, 05508-090 Sao Paulo, SP, BrazilTel.: 55 11 30912823 - Fax: 55 11 3091 2860 - E-mail: jane@astro.iag.usp.br**Gravitational lensing: Strong Weak & Micro**

April 7-12, 2003, Les Diablerets, Switzerland

Contact: Georges Meylan
Tel: 1 410 338 4483 - Fax: 1 410 338 4767 - E-mail: gmeylan@stsci.edu

2nd Eddington Workshop, Stellar Structure & Habitable Planet Finding
April 09-11, 2003, Palermo, Italy

Contact: Fabio Favata, Astrophysics Division, European Space Agency,
P.O. Box 299, 2200 AG, Noordwijk, The Netherlands
Tel: 31 71 565 4665 - Fax: 31 71 565 4690 - E-mail: eddi2003@astropa.unipa.it

Towards Other Earths - Darwin/TPF & the Search for Extrasolar Terrestrial Planets
April 22-25, 2003, Heidelberg, Germany

Contact: Th. Henning Max Planck Institute for Astronomy, Koenigstuhl 17, DE 69117
Heidelberg, Germany
Tel: 49 6221 528 200 - Fax: 49 6221 528 339 - E-mail: janssen@mpia.de

The Multi-Wavelength Approach to Unidentified Gamma-Ray Sources
May 19-23, 2003, The University of Hong Kong, China PR

Contact: Prof. K.S. Cheng, Dept of Physics, University Hong Kong Pokfulam Road,
Hong Kong, China PR
Tel: 852 2859 2368 - Fax: 852 2559 9152 - E-mail: hspksc@hkucc.hku.hk
<http://www.physics.hku.hk/~2003conf/>

Astrophysics of Dust

May 26-30, 2003, Estes Park, Colorado, USA

Contact: Adolf N. Witt, The University of Toledo, Ritter Observatory,
MS 113, US Toledo, OH 43606, USA

