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UBC/LAVAL LIQUID MIRROR TELESCOPE FIRST LIGHT

The UBC/Laval 2.7-metre liquid mirror telescope saw first light in mid September. At that time, 5 litres of mercury was applied to the f/1.9 mirror and a thin 2 mm layer was established over the entire surface. Initial observations, obtained using a commercial CCD video camera and frame-grabber, produced high-quality seeing-limited star images. The FWHM of the stellar profiles were 2" or less on the three successive nights of observation, with values as small as 1.5" being obtained. These results are very encouraging given the location of the telescope near sea level, some 40 km from Vancouver.

The telescope is presently being equipped with a large format (2k x 2k pixel) cooled CCD camera which will operate in TDI mode. The Earth's rotation will allow the telescope to scan a strip of sky 20 arcmin wide centred at 49 degrees declination. The integration time with the large CCD will be 2 minutes. Scientific observations are expected to commence early in 1993 when the wide-field corrector, currently being made by private industry, is delivered. We then plan to begin a series of surveys, using broad and narrowband filters, which should reach objects as faint as 21st magnitude. Data from these surveys will be made freely available to the Canadian astronomical community.

For more information contact P. Hickson (paul@geop.ubc.ca)

PLANS À LONG TERME EN ASTRONOMIE

Vous savez tous que la communauté astronomique canadienne a fait un effort considérable de planification au cours des deux dernières années et demie, particulièrement en ce qui concerne la participation projetée au projet Gemini de deux télescopes de 8 mètres. J'aimerais faire le point sur la situation actuelle.

La Société canadienne d'astronomie, à la demande du Conseil national de recherches du Canada et du Conseil de recherches en sciences naturelles et en génie, a réalisé une première étude : *Status, Plans and Possible Directions for Canadian Astronomy in the Nineteen Nineties*, qui fut distribuée à tous ses membres en décembre 1990. Elle présentait un résumé précieux de nos options pour le futur.

Puis, le CNRC et le CRSNG ont ensemble créé un Comité spécial de planification et de priorités pour l'astronomie, dont monsieur Ian McDiarmid assura la présidence. Voici les principales recommandations tirées des délibérations du comité :

- " C.1 Quoique le rapport ne contienne pas de recommandation détaillée sur Gemini et des diverses sources de financement, le Comité a considéré une participation canadienne possible de 25 %, pour laquelle les fonds d'exploitation proviendraient des ressources actuelles. Même si, en bout de ligne, une telle participation exigeait une redistribution importante des ressources tant financières qu'humaines au sein de l'Institut Herzberg d'astrophysique (IHA), une grande majorité des membres du Comité a estimé que, *malgré les sacrifices qu'il faudrait faire, la participation à Gemini était essentielle au maintien et au développement de la communauté astronomique canadienne. Nous recommandons donc que le Canada vise une participation de 25 % dans Gemini.*
- " C.2 Les possibilités de participer à des projets d'interférométrie millimétrique ou sous-

millimétrique diminuent rapidement. Il est donc urgent que les astronomes canadiens décident, avant un an ou moins, quel domaine de longueur d'onde, centimétrique ou sous-millimétrique, a le plus grand potentiel de recherche.

- " C.3 Le morcellement actuel de l'Institut Herzberg dans trois régions au Canada (sans compter les activités à l'étranger) est un handicap. Il ne peut pas s'adapter facilement aux nouvelles perspectives ou de tirer avantage des échanges entre scientifiques, ingénieurs ou techniciens de ses différents observatoires. Nous recommandons que, dans la mesure du possible, l'IHA soit centralisé en un même lieu, sans compromettre ses capacités d'institution scientifique en recherche et de soutien des installations nationales.
- " C.4 L'isolement relatif des astronomes du CNRC et ceux des universités est la cause de difficultés similaires. Nous recommandons que les scientifiques de toutes institutions puissent le plus facilement possible (par l'entremise du CRSNG et du CNRC) collaborer à des projets de recherche ou d'instrumentation.
- " C.5 Actuellement, le financement des projets d'astronomie spatiale est réparti entre trois organismes, ce qui cause de grandes difficultés à la réalisation de programmes de science spatiale au Canada. Nous recommandons qu'un effort important soit fait pour redresser la situation ; la nouvelle Agence spatiale canadienne devrait notamment adopter des politiques et des mécanismes de soutien à l'analyse des données spatiales, plutôt que de se limiter au seul soutien à la construction et au lancement de matériel de mission. "

Des copies du rapport original en anglais, ainsi que d'une traduction française du texte principal sont disponibles sur demande à mon bureau.

Le Conseil du CNRC a jugé qu'une participation de 25 % dans Gemini, 1) fragiliserait les autres composantes de l'astronomie canadienne, les rendant vulnérable à toute fluctuation, même petites, des ressources ; 2) qu'il ne pouvait pas recommander, au gouvernement, une telle dépense en cette période difficile. Toutefois, lors de sa réunion de novembre 1991, à la suite de représentations de plusieurs astronomes universitaires, le Conseil a convenu d'une participation de 15 %, à la condition que le CRSNG et Westar participent à la capitalisation. Le Conseil du CRSNG et le Conseil d'administration de Westar ont tous deux accepté de se joindre au CNRC pour participer à la participation au projet Gemini.

Le Conseil du CNRC a également demandé au directeur-général de l'Institut de préparer un plan à long-terme prévoyant une participation au capital et tous les frais d'exploitation nécessaires à une participation de 15 % dans Gemini. Suit un résumé des conclusions du rapport.

“ Le présent rapport démontre que tout en respectant les engagements immédiats de l'Institut, il est possible de participer à 15 % aux deux télescopes de 8 mètres de Gemini, mais que toute coupure supplémentaire aurait des conséquences graves. Lorsque chaque engagement aura été rempli, le projet sera réexaminé pour décider de l'opportunité d'utiliser les ressources disponibles pour le poursuivre ou le développer, ou encore pour y mettre un terme, de sorte que l'on puisse dégager une part de financement pour de nouvelles initiatives. Toutefois, si l'on peut compter sur une part de financement substantielle à long terme, la marge de manœuvre sera très faible au cours de la prochaine décennie parce que les ressources libérées par les départs à la retraite et l'achèvement des projets deviendront nécessaires pour la contribution de l'Institut au capital de Gemini.

“ Quoiqu'il en soit, si l'on veut assurer le succès de l'IHA dans ses diverses disciplines, il faudra trouver des fonds pour engager de jeunes chercheurs afin d'être en mesure de lancer de nouveaux projets majeurs au cours de la prochaine décennie. Comme on peut le voir dans l'histogramme de l'annexe I, la répartition des effectifs selon l'âge dans la plupart des services de l'IHA est fortement biaisée par les scientifiques plus âgés. Avec des effectifs en réduction constante — de 218 en 1983 à 152 personnes actuellement — il n'a pas été possible de rajeunir le personnel scientifique. Un budget salarial permettant de faire le pont au cours des cinq prochaines années pourrait grandement faciliter la planification des remplacements par l'embauche de quelques recrues en prévision des départs à la retraite au cours de la dernière moitié de la décennie.

“ Parmi ces choix, l'IHA doit accorder la priorité aux instruments et installations qui maintiennent les scientifiques canadiens à la pointe de la recherche, et au

personnel qui, grâce à ses travaux de recherche et à ses innovations techniques, apportera à l'IHA la crédibilité nécessaire à la réalisation de ses objectifs. La crédibilité est un ingrédient indispensable sur le plan international pour former des partenariats qui élargissent nos propres compétences nationales et, sur le plan national, pour assurer le leadership que l'on attend du CNRC. Un important aspect de cette crédibilité est la diffusion régulière des résultats scientifiques par leur publication dans des revues à comités de lecture. Dans certains cas, le personnel devra équilibrer ses responsabilités de façon à ce que cette activité essentielle ne soit pas négligée.

“ L'IHA doit également continuer à développer ses liens avec les scientifiques des universités de façon à ce que nos instruments et installations facilitent la réalisation de leur objectifs en matière de recherche et de formation. Tous les secteurs de l'IHA maintiennent déjà des relations suivies avec les chercheurs universitaires et leurs étudiants, mais plus de collaboration est souhaitable, notamment en Spectroscopie et en Physique des relations soleil-terre.

“ À l'avenir, le plus difficile pour l'IHA sera d'effectuer des choix parmi une multitude de possibilités pour être en mesure d'emprunter les avenues les plus productives. ”

Le Conseil a accepté ce plan en février 1992. Des copies du rapport sont aussi disponibles dans les deux langues officielles à mon bureau.

En 1992, le CNRC a cherché avec les partenaires internationaux de Gemini, en consultation avec le CRSNG et Westar, à accroître la participation du Canada dans Gemini. Le CNRC a obtenu du Conseil du Trésor l'autorisation de fournir des fonds dans Gemini, et le président, monsieur Perron, a signé un protocole d'entente avec la NSF des États-Unis et le SERC du Royaume-Uni. Le CNRC cherche actuellement à signer une entente officielle concernant Gemini. Jusqu'à ce jour, les participations se répartissent comme suit : États-Unis 50 %, Royaume-Uni 25 % et Canada 15 % ; le Chili offre une contribution de 5 %. Nous avons espéré que l'Australie prendrait aussi une part de 5 %, mais l'Australian Research Council a récemment décidé de ne pas participer à Gemini. Toutefois, nous sommes en communication avec deux autres pays qui se sont montrés intéressés. Entre-temps, des astronomes de l'IHA et des universités canadiennes collaborent avec le Bureau du projet de Tucson pour déterminer quelle configuration de télescope répondrait le mieux à nos besoins étant donné les fonds disponibles et quels instruments il serait le plus pertinent de construire au Canada.

Pardonnez-moi d'insister tant sur ces études, mais j'ai accordé la priorité à l'organisation de notre participation à Gemini.

DONALD C. MORTON

LONG RANGE PLANS FOR ASTRONOMY

As you are aware, the Canadian Astronomical Community has spent considerable effort during the past two and a half years planning for the future, particularly with respect to the proposed participation in the Gemini twin 8 m telescopes. I would like to summarize where we are now.

The first study titled "Status, Plans and Possible Directions for Canadian Astronomy in the Nineteen Nineties" was carried out by the Canadian Astronomical Society at the request of the National Research Council and the Natural Sciences & Engineering Research Council. The Society distributed this report to all members in December 1990. It provided a very useful summary of future options.

Next came the deliberations of the ad hoc Astronomy Priorities and Planning Committee set up jointly by NRC and NSERC and chaired by Dr. Ian McDiarmid. The primary recommendations were:

- "C.1 Although the report does not contain detailed recommendations with respect to Gemini and the various funding options, the Committee did examine the option of a 25% Canadian share with operating funds to be found within existing resources. Although such participation would ultimately require a major redistribution of both financial and human resources within the Herzberg Institute of Astrophysics (HIA), a substantial majority of the Committee felt that, in spite of the sacrifices which would have to be made, Gemini participation was vital to the continued health and development of the Canadian astronomical community. We therefore, recommended that Canada work toward a 25% partnership in Gemini.
- "C.2 Because opportunities to join mm/submm radio interferometry projects appear to be fast disappearing, it is imperative that Canadian astronomers decide very soon (within a year or less) whether development in cm or submm directions has the greatest scientific potential for this community.
- "C.3 The current division of HIA into three major locations within Canada (plus operational roles offshore) makes it inflexible in adapting to new opportunities and making best use of exchange of ideas among the scientists, engineers and technicians at the various sites. We recommend that, as far as is practicable, HIA be consolidated into a single site. Any such consolidation should proceed in a manner consistent with maintaining the HIA's scientific effectiveness, in both research and support of national facilities.
- "C.4 The current separation between NRC and University astronomers has similar disadvantages. We recommend that it be made possible (via NSERC and NRC) for scientists from all institutions to be able to develop joint scientific and instrumental

projects with maximum ease.

- "C.5 Funding for space astronomy is currently divided among three agencies, with the obvious result that doing space-based science in Canada is still extremely difficult. We recommend that a major effort be made to redress this situation; in particular, the new Canadian Space Agency should have policies and mechanisms to support analysis of space data, rather than only the construction and launch support of mission hardware."

Copies of the original report in English are obtainable on request from my office, as well as a French translation of the main text.

The Council of NRC decided that a 25% share of Gemini would put too much of the rest of Canadian astronomical activities at risk to small fluctuations in resources and was more than it could recommend to the Government in difficult economic times. However, at a meeting in November 1991, following presentations by several university astronomers, the Council agreed to a 15% share if NSERC and Westar also would contribute to the capital. The Council of NSERC and the Board of Westar both accepted this opportunity to join NRC in the support of Gemini.

The Council of NRC also requested the Director General of HIA to prepare a long range plan for the Institute that included part of the capital and all of the operating costs for a 15% share of Gemini. The conclusions are summarized below:

"This report demonstrates the feasibility of fulfilling HIA's immediate commitments while taking a 15% share of the Gemini twin 8-m telescopes, but any further cuts will have serious effects. As each commitment is completed, the project will be reviewed to decide whether the resources should be used to continue or enhance it, or terminate it in order to open a funding wedge for new initiatives. In the long term this wedge will be substantial, but over the next decade there will be little flexibility because the resources from retirements and the completion of projects will be needed to provide HIA's capital contribution to Gemini.

"Nevertheless, if HIA is to be effective in its various disciplines, some funds must be made available to bring in young researchers so that we are in a position to initiate major new projects in the next decade. As shown in the histogram in Appendix 1, the age distributions in most parts of HIA are seriously skewed by older scientists. With the continual decreases in complement - from 218 in 1983 to 152 now - a proper rejuvenation of the scientific staff has not been possible. Some bridging salary dollars in the next five years could be very effective in permitting succession planning with a few recruitments in anticipation of retirements in the latter half of the decade.

"In all these choices HIA must emphasize instruments and facilities that keep Canadian scientists at the forefront of research, and staff who, through their research and technical innovation, will give HIA the necessary credibility to fulfill its objectives. Credibility is essential internationally in order to form partnerships that broaden our own national capabilities, and nationally to provide the leadership that is expected from NRC. An important aspect of this credibility is the regular communication of scientific results through publication in refereed journals. In some cases staff will have to balance responsibilities so that this essential activity does occur.

"HIA also must continue to expand its links with university scientists so that our instruments and facilities enhance their objectives in research and training. All parts of HIA already have significant interactions with university staff and students, but further steps are possible, particularly in solar-terrestrial physics and spectroscopy.

"In the future the greatest challenge for HIA will be how to choose from a multitude of excellent opportunities in order to follow the most productive paths."

The Council accepted this plan in February 1992. Copies of this report also are available in either official

language from my office.

During 1992 NRC has been working with the international Gemini partners, in consultation with NSERC and Westar to further Canada's participation in Gemini. NRC has obtained Treasury Board approval to contribute funds to Gemini and President Perron has signed a Memorandum of Understanding with the U.S. NSF and the U.K. SERC. NRC currently is working towards the signing of a formal agreement for Gemini. To date the shares are 50% U.S., 25% U.K., and 15% Canada, with Chile offering to contribute 5%. We had hoped that Australia also would take 5%, but recently the Australian Research Council decided against joining Gemini. However, we are in contact with two other countries which have expressed interest. Meanwhile, astronomers from HIA and Canadian universities are working with the Tucson Project Office to determine the telescope configuration that best meets our needs with the available funds and which instruments would be most appropriate to build in Canada.

I am sorry to have taken so long reporting to you on these studies, but I have given priority to organizing our participation in Gemini.

DONALD C. MORTON

PRESS RELEASE FROM SEDS-CANADA: ANNOUNCING THE CREATION OF CANADA'S FIRST STUDENT RUN SPACE INTEREST GROUP

We are pleased to announce the formation of the Students for the Exploration & Development of Space / Société des étudiants/tes pour l'Exploration et le Développement Spatial - Canada in 1992, coinciding with International Space Year. SEDS is an international student-run organization, with over 60 chapters worldwide. SEDS-Canada has been founded by SEDS chapters and individual members in Canada, joining together to form one organization. Founding member chapters include those from York University, Marc Garneau Collegiate Institute, and the O'Neill Collegiate and Vocational Institute. New chapters have already joined us, including Saint Mary's University in Halifax, the University of Toronto, and soon, Mt. Royal College in Calgary.

The purpose of SEDS-Canada is to unite Canadian students interested in space. SEDS-Canada will provide a forum for the discussion and exchange of ideas related to space exploration and educate students and the general public about the Canadian space program. In the past, a number of conferences have been sponsored by individual SEDS Chapters. In March we will have our first national conference: SPACE1993, to be held at York University in Toronto.

SEDS-Canada is ready to undertake and develop a number of programs. Preparations are now underway to promote local and national conferences for the general public. A newsletter is in operation to provide information on education and job prospects as well as information on space projects. A scholarship program for both students entering university and those continuing in university is being organized. SEDS-Canada is also planning to provide communication services for two microsatellite projects, SEDSAT-1, developed by SEDS-USA, and ESPY, developed by UKSEDS. At SEDS-York, ham radio and photography groups have begun, both for member use and as a future support system for SEDSAT-1 and ESPY.

For more information on SEDS-Canada, please contact the SEDS-Canada Executive Council at:

SEDS-Canada

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1993 ANNUAL MEETING OF THE CANADIAN ASTRONOMICAL SOCIETY

June 1-5, 1993

The Dominion Astrophysical Observatory (DAO) and the University of Victoria (UVic) invite you to attend the 1993 Annual Meeting of the Society, which commemorates DAO's 75th 'first-light' anniversary. A programme planned for all CASCA members is being assembled—plan to join us for this celebration! The scientific highlight of the meeting will be a full-day symposium on **LARGE SCALE STRUCTURE IN THE UNIVERSE** that will review recent stunning discoveries from redshift surveys, the distribution of quasars and galaxies, studies of high-redshift sources and results from COBE, ROSAT and other satellites. Invited speakers are Ray Carlberg (U. of T.), Sandra Faber (Lick Obs.), Margaret Geller (Center for Astrophysics), Nick Kaiser (CITA), David Koo (Lick Obs.), George Lake (U. Washington), Maarten Schmidt (CalTech), George Smoot (UC Berkeley) and Tony Tyson (Bell Labs.).

Another highlight will be a special session on **EDUCATION IN ASTRONOMY**, featuring Sheila Tobias, author of many books on science and math education, especially as they affect girls and women, and Dennis Schatz, reknown science educator from the Pacific Science Center. These talks will lead into a mini-workshop where CASCA members can share their most effective demonstration and laboratory techniques.

The meeting will be held at UVic and a meeting registration package will be mailed to CASCA members in February 1993. A large block of University residence rooms are available, as are a host of hotel and motel accommodations for every taste. The greater Victoria and southern Vancouver Island area offer a variety of locales and attractions for the visitor with a few hours or a few days to enjoy them. The tentative schedule for the meeting is:

Tuesday, June 1

- CASCA Board meeting all day
- Official reception at Government House, hosted by His Honour David Lam, Lieutenant Governor of British Columbia: **a very special honour and event not to be missed!**

Wednesday, June 2

- General scientific sessions
- Special "Historical Astronomy" Session
- Dr. Margaret Geller delivers the 9th Helen Sawyer Hogg Public Lecture entitled, "Mapping the Universe," and concluding with her recently produced movie "So many galaxies, so little time," which contains high-resolution supercomputer simulations of the Universe at large and the latest CfA survey results.

Thursday, June 3

- Symposium on Large Scale Structure in the Universe
- 1992 Petrie Lecture by Prof. Maarten Schmidt (CalTech).
- Banquet dinner at the UVic Faculty Club.

Friday, June 4

- General scientific sessions
- Plaskett Award Lecture (for best Ph.D. dissertation)
- CASCA Annual General Meeting

Saturday, June 5

- General scientific sessions
- Special "Education in Astronomy" Session with Sheila Tobias & Dennis Schatz
- Tour of the DAO

Plan to make Victoria the place to be in '93!

Local Organizing Committee: Chris Aikman, Dennis Crabtree, Jim Hesser (DAO/HIA/NRC), Chris Pritchett (UVic)

CASCA'S CHARITABLE TRUST
'Cascatrust'

CASCA's Board, earlier this year, established Cascatrust as an independent body to solicit funds and issue receipts for income tax purposes, and to use its funds to support certain charitable purposes. After becoming formally constituted, Cascatrust successfully obtained from Revenue Canada the status of a Registered Charitable Organization. Such a registered charity may solicit funds or contributions and issue official donation receipts, provided such funds are expended in the pursuit of charitable activities recognized by law.

Cascatrust is also now formally registered as a charitable organization in the Province of Quebec.

CASCA's Board has asked Cascatrust to provide support, as its means permit, to certain activities some of which CASCA is already carrying out and some of which may be new. These activities are to include the work of CASCA's Education Committee and its Heritage Committee.

As immediate responsibilities, Cascatrust will support the distribution of "Universe in the Classroom" to addresses in Canada, and the costs associated with the Helen Sawyer Hogg Lecture (jointly with the RASC) and the J. S. Plaskett Gold Medal, all of which are on-going. At the Victoria meeting in June, 1993, Cascatrust will co-sponsor the one-day Open Session on Education in Astronomy.

Cascatrust will seek to find a way, within the regulations, of supporting another of CASCA's on-going programs, the distribution of surplus journals to institutions in countries outside of Canada. Cascatrust would be permitted, we believe, to provide support to a visitor to Canada under the Exchange of Astronomers

program of IAU Commission 38, and it might be able to contribute in that and other ways to the relief of hardships in the FSU and Eastern European countries. Because these programs would or could involve benefits outside the country Cascatrust must consult further with Revenue Canada with respect to any specific action to be undertaken.

* * *

Cascatrust now provides a means whereby members who are perhaps not personally involved in their society's various undertakings can nevertheless participate through generous donations.

Cascatrust requires all the support that the individual members of the Society can give. This is especially the case at present when opportunities for assistance from us are increasing. The trustees are also planning to develop a growing capital fund for longer-term financial strength.

Cascatrust is ready now to receive contributions in any amount. Cheques should be made payable to 'Cascatrust' and addressed to Cascatrust, c/o Department of Astronomy, University of Toronto, 60 St. George Street, Toronto, Ontario, Canada M5S 1A7. Tax receipts will be sent to the donor's address in the current CASCA Membership Directory, if not otherwise indicated.

CHRISTINE CLEMENT
DAVID CRAMPTON
DONALD MACRAE
Trustees of Cascatrust

WORKSHOP ON "INSTABILITY AND VARIABILITY OF HOT-STAR WINDS"
August 23-27, 1993; Isle-aux-Coudres, Quebec

There are many observational indications that the stellar winds of OB- and WR-stars are variable in time and structure in space. It is widely believed that strong instabilities in the winds of these stars are ultimately responsible for producing time-variable structure. We are organizing a specialized workshop to explore the nature of these instabilities and their relationship with the observed forms of variability. We expect that a timely airing of observational and theoretical issues will clarify the strengths and weaknesses of the "instability" hypothesis and will provide new insights into the physics of hot-star winds. Researchers actively involved in observational or theoretical studies of OB- and WR-star wind variability who are interested in participating in the workshop should contact one of the undersigned as soon as possible.

Tony Moffat (moffat@astro.umontreal.ca)
Stan Owocki (owocki@bartol.udel.edu)
Nicole St-Louis (stlouis@astro.umontreal.ca)
Alex Fullerton (fullerton@bartol.udel.edu)

SMALL GRANT REPORT
THE ANALYSIS OF AN EXTENSIVE SET OF IUE SPECTRA OF EZ CMa

I was privileged to be allocated the very last CASCA small grant. The funds were used to cover part of the cost of a 3-week visit to University College, London, England in March 1992. As part of a coordinated campaign of observations of the intriguing variable Wolf-Rayet star EZ CMa, we (colleagues in London, at JILA, Colorado and myself) have obtained the most extensive time-sequence of IUE spectra of this star to date. While in London I have reduced the 156 high-resolution IUE spectra using the IUEDR software package which has been specifically designed to produce optimised IUE output spectra. Preliminary analysis of the data reveal extensive, large-scale variability in the major P Cygni profiles and in most of the subordinate transitions. In view of the relatively long time-coverage and the high temporal resolution of the dataset, these

observations should prove to be extremely important in identifying the origin of the extremely puzzling pattern of variability observed in many wavebands for this star. We also have a series of optical spectra of EZ CMa obtained with The University of Toronto's 0.6 m in Las Campanas, Chile which were obtained quasi-simultaneously with these ultraviolet observations. The optical data are presently being reduced and should serve as an additional constraint in the interpretation of the variability.

My stay in London also greatly speeded up the completion of two scientific papers through the efficiency of direct interaction with my colleagues and fellow co-authors.

NICOLE ST - LOUIS

MEMBERSHIP IN CITA, INC.

The Canadian Institute for Theoretical Astrophysics is intended to serve as a national institute that is hosted by—rather than a part of—an individual university. To help maintain CITA's national character distinct from its host university, CITA has been incorporated under the name Canadian Institute for Theoretical Astrophysics—Institut canadien d'astrophysique théorique.

An important part of the structure of CITA, Inc. is its members. In particular, the members elect four of the seven members of the CITA Council; the four elected Council members must be members of CITA, Inc.; and any changes in the by-laws of CITA, Inc. must be approved by the members. In addition, the membership list is the basis for mailing our newsletter and for announcements of CITA programs, post-doctoral fellowships, etc. It is also our hope that the CITA membership will be broadly representative of the community of theoretical astrophysicists in Canada, in much the same way that the CAS represents the community of astronomers.

The conditions for membership are: (1) members must hold a doctorate degree awarded by a recognized university for work related to astronomy or astrophysics, or else have equivalent experience, and their research should have a major component in the broad field of theoretical astrophysics; (2) members must be professionally engaged at a university or research laboratory and be eligible to hold an NSERC operating

grant, or else be engaged in equivalent positions in Canadian Government Research Laboratories, or be a Canadian citizen working abroad in an equivalent position; (3) members must be members in good standing of the CAS.

There are no dues. However, we encourage and solicit donations by the members of CITA, Inc. or other persons wishing to support theoretical astrophysics in Canada. CITA, Inc. has charitable status with Revenue Canada so that all contributions are tax-deductible.

Membership is for five years. The current membership list, along with the expiry dates, is given below.

New members are elected at the Annual General Meeting, which is planned to occur during the CAS meeting in June. If you would like to join, please send a curriculum vitae plus a covering letter stating that you fulfil conditions (1), (2), and (3) above, to: Dr. Scott Tremaine, CITA, McLennan Labs, University of Toronto, 60 St. George St., Toronto M5S 1A7, Ontario.

If you would like to withdraw from membership, please send me a written notice of resignation.

We hope that all eligible CAS members with an interest in theoretical astrophysics will continue to join so that the input from our membership remains as broadly-based and representative as possible.

SCOTT TREMAINE
DIRECTOR

COMMENT DEVENIR MEMBRE DE L'ICAT INC.

Le but de l'Institut canadien d'astrophysique théorique, c'est de servir d'institut national; pour remplir ce but l'institut est accueilli par une université "hôte", sans pour autant en faire partie. Afin de préserver son caractère national et de mieux marquer la distinction entre l'ICAT et l'université qui le reçoit, l'ICAT s'est constitué en une société portant le nom d'Institut canadien d'astrophysique théorique-Canadian Institute for Theoretical Astrophysics.

La structure de l'ICAT inc. s'appuie fortement sur ses membres. En particulier, ceux-ci élisent quatre des sept membres du Conseil de l'ICAT inc; ces quatre membres élus du Conseil doivent aussi être membres de l'ICAT inc. Aucun règlement de l'ICAT inc. ne peut être modifié sans l'approbation des membres. De plus, nous utilisons notre liste de membres pour expédier notre bulletin d'information et pour annoncer les programmes, les bourses postdoctorales, etc. qu'offre l'ICAT. Nous souhaitons que les membres de l'ICAT représentent en gros l'ensemble des astrophysiciens théoriciens au Canada tout comme la SCA représente l'ensemble des astronomes.

Pour devenir membre, il faut remplir les conditions suivantes: (1) détenir un doctorat, décerné par une université reconnue, dans le domaine de l'astronomie ou de l'astrophysique, ou avoir acquis une expérience équivalente au moyen de travaux de recherche qui relèvent largement de l'astrophysique théorique; (2) être employé à titre professionnel d'une université ou d'un laboratoire de recherche et être admissible aux subventions pour dépenses courantes du CRSNG,

ou occuper un poste équivalent dans un laboratoire de recherche du gouvernement canadien, ou être citoyen canadien occupant une position équivalente à l'étranger; (3) être membre en règle de la SCA.

Il n'y a pas de cotisation. Cependant, nous faisons appel à ceux d'entre les membres de l'ICAT, inc. et à d'autres qui veulent promouvoir l'astrophysique théorique au Canada et nous les encourageons fortement à nous faire un don. Précisons que Revenu Canada a reconnu l'ICAT inc. comme organisme de charité, si bien que tous les dons sont déductibles d'impôt.

On devient membre pour cinq ans. La liste des membres actuels, aussi bien que la date à laquelle leur engagement se termine, se trouve ci-dessous.

Les nouveaux membres sont élus à l'Assemblée générale annuelle de la SCA en juin. Si vous désirez adhérer à l'ICAT, veuillez envoyer votre curriculum vitae accompagné d'une lettre affirmant que vous remplissez les conditions (1), (2) et (3) ci-dessus, au Dr. Scott Tremaine, CITA, McLennan Labs, University of Toronto, 60 St. George St., Toronto, Ont. M5S 1A7.

Si vous désirez démissionner comme membre, veuillez m'en aviser par écrit.

Nous souhaitons que tous les membres de la SCA qui sont admissibles et qui s'intéressent à l'astrophysique théorique se joignent à l'ICAT, pour que la contribution de nos membres reste aussi diversifiée et représentative que possible.

SCOTT TREMAINE
DIRECTEUR

(list of CITA members appears on p. 10)

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CFHT SCIENTIFIC ADVISORY COMMITTEE

Report on November 1992 Meeting

The 42nd meeting of the CFHT Scientific Advisory Committee was held at CFHT Headquarters in Waimea November 4th – 6th, 1992. Some highlights of the discussions held at this meeting follow.

1. New CFHT Instruments. The MOS/SIS spectrograph, Redeye IR camera, and Coudé f/4 camera are all completed, and undergoing final engineering tests. All three of these instruments will be offered to observers in the next semester. MOS/SIS has been used for regular observing runs in semester 92II, and has worked almost flawlessly from the time of its first engineering run; this instrument, which was built jointly at Meudon and DAO, is viewed as a model for future large instrumentation projects.

2. Future CFHT Instrumentation. The MOCAM mosaic project (a Toulouse-DAO collaboration to build a $2 \times 2 \times 2048^2$ CCD mosaic) is well underway; it is expected that the mosaic will be available for testing at CFHT in late 1993. The "PUEO" adaptive optics bonnette continues to make progress; a contract for the construction of this instrument is about to be let, and first light is expected in late 1994 or early 1995.

3. New Detectors. Two of the most exciting developments reported on at the meeting involved detectors. CFHT is collaborating with U. Hawaii in acquiring some thinned 2048^2 CCDs; these devices are expected to have excellent blue response, low readout noise, and peak quantum efficiency approaching 100%. They are expected to be available in early 1993.

Klaus Hodapp reported on an externally funded proposal to develop prototype 1024^2 InSb IR arrays ($1 - 5 \mu\text{m}$). The availability of these devices 2–3 years hence should definitely be kept in mind for new CFHT instruments.

4. Other Technical Activities. The new telescope control system (TCS IV) has been given a high priority by CFHT and by SAC; this is to be completed over the next year. Both f/8 and f/35 foci will be out of commission (for 9 weeks and 8 weeks respectively) during semester 93I, to allow for badly needed optical and mechanical improvements. SAC recommended that CFHT *not* proceed with the atmospheric dispersion corrector and corrector for the Cassegrain focus.

5. Instrumentation for Adaptive Optics. There was an extended discussion on instrumentation that will be required for the PUEO Adaptive Optics Bonnette. Aside from optical and IR imagers (with pixel sizes well-matched to the scale at the focus of the bonnette), it is clear that there will be a need for spectroscopic instrumentation. SAC discussed integral field spectroscopy, and agreed that there should be presentations on both the "Tiger" (lenslet array) and "Hydra" (fibre bundle) approaches to 2D spectroscopy at the next meeting in Meudon (May 1993). SAC also noted the need for 1D (i.e. long slit) spectroscopy with PUEO, although positioning a 0.1 arcsec slit on a target will present an interesting technical challenge for the telescope control system.

6. *IR Spectroscopy.* There was an extensive discussion of instrumentation needs for IR spectroscopy. SAC recommended that CFHT proceed with a REDEYE Grism mode, which could provide low resolution slit spectroscopy in the *H* and *K* (but not *J*) bands. Although there was no formal presentation of the OSIRIS project (a proposed joint Meudon-DAO project to build a multi-slit, tip-tilt-corrected, 1 – 2 μ m low-medium resolution spectrograph), SAC noted the unique capabilities of this instrument compared to other *uncooled* IR spectrographs on 3–4 m class telescopes. Nadeau and collaborators have proposed to build SIMON, a cooled grating spectrometer with capabilities out to 2.4 μ m. SAC was excited by the potential of this instrument, and noted that it possesses complementary capabilities to those of OSIRIS (particularly for medium resolution *K* band spectroscopy, which would not be possible with any other contemplated CFHT instrument).

7. *Telescope Scheduling.* SAC considered and approved

a proposed change to the CFHT semester system. In future, **semester I will run from February 1 to July 31**, and **semester II will run from August 1 to January 31**. The next semester (93II) will run from 1 Jul 1993 to 31 Jan 1994, to allow a smooth transition to the new schedule.

A limited experiment in service observing is taking place in semester 93I. The success of this experiment will be evaluated by SAC during its May 1993 meeting. SAC views this experiment as a precursor to experiments with remote observing and flexible scheduling.

8. *SAC, CTAC, and TAC Membership.* H. Richer (UBC) will replace C. Pritchett as vice-chairperson of SAC in 1993. M. DeRobertis (York U.) will replace D. Nadeau on TAC. CTAC members for 1993 will be C. Pritchett (chair), M. DeRobertis, R. Pudritz, H. Yee, R. McClure, and one additional member who will be selected shortly.

C.J.PRITCHETT

CFHT SCHEDULING CHANGE

A very important change is about to take place in the manner in which CFHT telescope time is allocated. Henceforth, semester I will run from **Feb 1 to Jul 31**, and semester II will run from **Aug 1 to Jan 31**. This change will be implemented starting in the second half of 1993: 93I will run on the present system (i.e. from Jan 1, 1993 to Jun 30, 1993), but 93II will run from Jul 1, 1993 to Jan 31, 1994, to allow a smooth transition to the new system.

There were many reasons for approving the above change. Observers in early January and July currently have very little time to make travel arrangements, and often have to purchase very expensive air tickets (this

is a particular problem for observers from France in January, because of the Christmas peak season). Furthermore, the periods of lowest demand on the telescope (15 Dec – 15 Feb and 15 Jun – 15 Aug) fall more in semester II than in semester I; it would be easier to schedule the telescope if these periods were split equally over the two semesters.

Note that, for the present, the application deadlines for CFHT time (Aug 31 for semester I, and Feb 28, for semester II) will remain the same.

C.J.PRITCHETT
D.NADEAU

7 December 1992

To: University Astronomers in Canada

From: Donald C. Morton

Subject: NSERC Travel Grants to use Hawaiian Telescopes

As you are aware, HIA administers a grant from NSERC to pay the travel costs of observers who have been awarded time on the CFHT, JCMT and UKIRT. I have added UKIRT to the two in which Canada is directly involved because we arranged with the UK Science and Engineering Research Council to trade time with JCMT. This block grant reduces the need to predict the costs of such observing trips when submitting NSERC proposals, and provides funds for those without NSERC grants. The peer review of the proposals for time on these telescopes is just as strict as those for grants.

On the next page appears a summary of the distribution of the funds in recent years, and the current status.

Fiscal Year	Grant Amount	Amount Spent or Committed	Amount Available	No. of Observers	Expected Requests
1988-89	90,000	107,000		68	
1989-90	110,000	93,000		56	
1990-91	120,000	120,000		68	
1991-92)		140,000		75	
1992-93)	390,000	109,000	16,000	50	18
1993-94)			125,000		65 to 70

The figures for 1991-92, 1992-93, and 1993-94 represent the amounts called up from a three-year grant of \$390,000. I had planned to spend less in 1991-92 but we found, contrary to our initial advice, that we had to use all of the funds we had called up that year. Consequently, I was able to cover some costs for second observers. HIA covers all the administrative costs for these travel grants, including telephone calls and approximately a third of Mary Saver's salary.

Even with the strict conditions I have applied to what is chargeable, we are not going to have sufficient money to meet everyone's needs. Since we do not want to cut excessively into the funds for 1993-94, I am sure you will understand if I must decline some requests.

Ottawa, le 7 décembre 1992

Aux : Astronomes universitaires canadiens

De : Donald C. Morton

Sujet : La subvention du CRSNG pour les voyages aux télescopes hawaïens

L'IHA administre un fonds du CRSNG pour défrayer les coûts des voyages par les observateurs qui ont reçu du temps d'observation aux télescopes CFH, JCM, et UKIRT. J'ajoute l'UKIRT aux deux autres, parce qu'un arrangement existe avec le SERC du Royaume Uni pour échanger du temps avec les TJCM. Ce fonds commun réduit la nécessité de prédire les coûts des voyages d'observations dans les demandes au CRSNG et permet d'allouer des fonds pour ceux et celles sans bourses du CRSNG. Le système d'arbitrage par les pairs des demandes de temps sur ces télescopes est aussi strict que pour celui pour les bourses.

Voici un sommaire de l'allocation récente des fonds et leur état actuel.

Année fiscale	Subvention	Somme dépensée ou engagée	Somme disponible	Nombre d'observateurs	Demandes prévues
1988-1989	90 000	107 000		68	
1989-1990	110 000	93 000		56	
1990-1991	120 000	120 000		68	
1991-1992)		140 000		75	
1992-1993)	390 000	109 000	16 000	50	18
1993-1994)			125 000		de 65 à 70

Les chiffres pour 1991-1992, 1992-1993, et 1993-1994 totalisent les montants alloués au fonds commun de 390 000 \$. J'avais prévu dépenser moins en 1991-1992 mais, contrairement aux avis initiaux, nous avons découvert que nous devons distribuer tous les fonds envisagés pour cette année- là. Conséquemment, j'ai pu défrayer certains coûts pour les observateurs accompagnateurs. L'IHA couvre tous les frais d'administration de ces bourses de voyages, incluant les frais d'appels téléphoniques et environ un tiers du salaire de madame Mary Saver.

Même avec les conditions strictes sur ce qui peut être défrayé, nous n'aurons pas assez de fonds pour satisfaire les besoins de tous. Ne voulant pas puiser de façon excessive dans les fonds pour 1993-1994, je devrai refuser certaines demandes. Je compte sur votre compréhension.

CANADIAN ASTRONOMY PUBLICATIONS
September 2 to December 7, 1992

If you have a preprint or other Canadian publication, we would like to include it in this list. Please send a copy (or a photocopy of the title page) to:

Canadian Astronomy Publications List
 Astronomy Library
 University of Toronto
 Room 1306
 60 St. George Street
 Toronto, Ontario
 M5S 1A7

A. PREPRINTS OF RESEARCH PAPERS

The following is a list of preprints written by Canadian astronomers and received at the Astronomy library within the dates given above. The preprints are arranged in alphabetical order according to the surname of the first listed author. Originating institution and date of receipt at the library are given.

- Andersson, B.-G., Roger, R.S., Wannier, P.G., *Warm neutral halos around molecular clouds*. Dominion Radio Astrophysical Observatory, 7-Oct-1992.
- Ashman, K.M., Zepf, S.E., *Merging and interacting galaxies: sites of globular cluster formation*. Canadian Institute for Theoretical Astrophysics, 22-Oct-1992.
- Bell, M.B., Avery, L.W., Watson, J.K.G., *A spectral line survey of W51 from 17.6 GHz to 22.0 GHz*. Herzberg Institute of Astrophysics, 13-Oct-1992.
- Bonnell, I., Bastien, P., *Fragmentation of elongated cylindrical clouds. V. Dependence of mass ratios on initial conditions*. Obs. Mont Megantic, 29-Sep-1992.
- Bonnell, I., et al., *Fragmentation of elongated cylindrical clouds IV. Clouds with solid-body rotation about an arbitrary axis*. Obs. Mont Megantic, 29-Sep-1992.
- Bonnell, I., Bastien, P., *Fragmentation of elongated cylindrical clouds VI. Comparison with observations*. Obs. Mont Megantic, 29-Sep-1992.
- Bonnell, I., Bastien, P., *A binary origin for FU Orionis stars*. Obs. Mont Megantic, 29-Sep-1992.
- Boreiko, R.T., Clark, T.A., Naylor, D.A., Busler, J.R., *High-n hydrogen lines in solar infra-red spectra from balloon-borne, Mauna Kea and ATMOS observations*. UCa, 14-Sep-1992.
- Bothun, G.D., Harris, H.C., Hesser, J.E., *Detection of the globular cluster population around NGC 7814*. Dominion Astrophysical Observatory, 28-Sep-1992.
- Burrell, D.A., Clark, T.A., *Tentative evidence for moving waves in the solar photosphere from near IR rapid-scan Fourier transform spectroscopy*. University of Calgary, 14-Sep-1992.
- Clark, T.A., *Eclipse observations of the extreme solar limb at sub-millimeter wavelengths*. University of Calgary, 14-Sep-1992.
- Clark, T.A., et al, *Near IR observations of the 11 July 1991 total solar eclipse from Mauna Kea, Hawaii*. University of Calgary, 14-Sep-1992.
- Clark, T.A., Naylor, D.A., Tompkins, G.J., Duncan, W.D., *Extension of the solar limb at sub-millimeter and millimeter wavelengths*. University of Calgary, 14-Sep-1992.
- Clement, M.J., *Hydrodynamical simulations of rotating stars I. A model for subgrid-scale flow*. David Dunlap Observatory, University of Toronto, 20-Oct-1992.
- Couture, J., Hardy, E., *The low-mass stellar content of galaxies: constraints through hybrid population synthesis near 1 μ m*. Obs. Mont Megantic, 26-Nov-1992.
- Coziol, R., et al, *The Montreal blue galaxy survey. I. First list of UV-bright candidates*. Obs. Mont Megantic, 29-Sep-1992.
- Coziol, R., et al, *MBG02223-1922 a newly identified luminous Seyfert galaxy*. Obs. Mont Megantic, 26-Nov-1992.
- Davidge, T.J., Jones, J.H., *BVI photometry of stars in the outer regions of M32*. Dominion Astrophysical Observatory, 28-Sep-1992.
- Demers, S., Irwin, M.J., Kunkel, W.E., *Very red stars between the Magellanic Clouds: Discovery of carbon stars in the outer LMC and SMC halos*. Obs. Mont Megantic, 29-Sep-1992.
- Demers, S., Irwin, M.J., *Deep CCD photometry of the dwarf spheroidal galaxy Leo II*. Obs. Mont Megantic, 26-Nov-1992.

- Durrell, P.R., Harris, W.E., *A color-magnitude study of the globular cluster M15*. McMaster University, 2-Dec-1992.
- Evans, N.R., *Luminosities for two yellow supergiants: nonvariables and the instability strip*. Institute for Space and Terrestrial Sciences, York University, York University, 1-Oct-1992.
- Fischer, P., Welch, D.L., Mateo, M., *Dynamics of the intermediate-age elliptical LMC cluster NGC 1978*. McMaster University, 8-Sep-1992.
- Garrison, R.F., *The interstellar reddening correction*. David Dunlap Observatory, University of Toronto, 22-Sep-1992.
- Giovannini, G., Kim, K.-T., Kronberg, P.P., et al, *The halo radio source Coma-C and the origin of halo sources*. David Dunlap Observatory, University of Toronto, 4-Dec-1992.
- Gray, D.F., *The inferred color index of the sun*. University of Western Ontario, 28-Oct-1992.
- Harris, G.L.H., Geisler, D., Harris, H.C., Hesser, J.E., *Metal abundances from Washington photometry of globular clusters in NGC 5128*. University of Western Ontario, 11-Nov-1992.
- Harrison, R.A., et al, *First millimetre wavelength observations of an active solar prominence observed during the July 1991 total solar eclipse*. University of Calgary, 14-Sep-1992.
- Howarth, I.D., Bolton, C.T., et al, *Time-series observations of O stars - III. IUE and HST spectroscopy of [zeta] Ophiuchi, and implications for the 'photospheric connection'*. David Dunlap Observatory, University of Toronto, 20-Oct-1992.
- Hughes, V.A., *Is Cepheus A East a Herbig-Haro object?*. Queen's University, 23-Oct-1992.
- Hutchings, J.B., Ellingson, E., Ozard, S., *Subarcsecond optical imaging of high redshift QSOs*. Dominion Astrophysical Observatory, 8-Sep-1992.
- Hutchings, J.B., et al, *HST spectroscopy of OB stars in M31*. Dominion Astrophysical Observatory, 28-Sep-1992.
- Kaspi, V.M., et al, *PSR J1341-6220: a young pulsar in a supernova remnant*. Princeton U, 29-Sep-1992.
- Lilly, S., *Scientific windows of opportunity for the Canada-France-Hawaii Telescope*. David Dunlap Observatory, University of Toronto, 29-Oct-1992.
- Lilly, S.J., *A deep I-band selected galaxy sample: implications for galaxy evolution*. David Dunlap Observatory, University of Toronto, 25-Nov-1992.
- Lindsey, C., et al, *Extreme-infrared brightness profile of the solar chromosphere obtained during the total eclipse of 1991*. University of Calgary, 14-Sep-1992.
- Meurer, G.R., *Stellar populations and star clusters in nearby blue compact dwarf galaxies*. Obs. Mont Megantic, 29-Sep-1992.
- Moffat, A.F.J., Marchenko, S.V., *Long-term APT photometry of the variable WR star HD 191765: LBV-type microvariability or precession in a binary?*. Obs. Mont Megantic, 26-Nov-1992.
- Moffat, A.F.J., et al, *A spectroscopic study of the short-period eclipsing Wolf-Rayet binary CX Cephei (WN5+O5V)*. Obs. Mont Megantic, 26-Nov-1992.
- Naylor, D.A., Tompkins, G.J., Clark, T.A., Davis, G.R., Duncan, W.D., *Solar sub-millimeter and millimeter spectroscopy between 7 and 30 cm⁻¹ from the James Clerk Maxwell Telescope*. University of Calgary, 14-Sep-1992.
- Percy, J.R., Shepherd, C.W., *A photometric survey of small-amplitude red variables*. David Dunlap Observatory, University of Toronto, 15-Oct-1992.
- Perry, J.J., Watson, A.M., Kronberg, P.P., *Magnetic field strengths in high redshift galaxies: Can the galactic dynamo be tested?*. David Dunlap Observatory, University of Toronto, 25-Sep-1992.
- Reed, L.G., Harris, G.L.H., Harris, W.E., *Integrated BVR photometry of halo globular clusters in M31. I.*. University of Western Ontario, 11-Nov-1992.
- Reid, A.H.N., Bolton, C.T., et al, *Time-series observations of O stars - II. Optical spectroscopy of [zeta] Ophiuchi*. David Dunlap Observatory, University of Toronto, 20-Oct-1992.
- Rouleau, F., Martin, P.G., *A new method to calculate the extinction properties of irregularly shaped particles*. Canadian Institute for Theoretical Astrophysics, 4-Dec-1992.
- Roy, J.-R., Belley, J., *The ionized gas in the center and in the bar of the spiral galaxy NGC 6946*. Obs. Mont Megantic, 26-Nov-1992.
- Sage, L.J., Salzer, J.J., Loose, H.-H., Henkel, C., *Star formation and molecular clouds in blue compact galaxies*. Max-Planck-Inst. für Radioastronomie, 28-Oct-1992.
- Sasselov, D., Lester, J.B., *The He I lambda 10830 line in classical cepheids. I. Mechanism of formation*. David Dunlap Observatory, University of Toronto, 26-Nov-1992.
- Sasselov, D.D., Lester, J.B., *The He I lambda 10830 line in classical cepheids. II. Cepheid chromospheres*. David Dunlap Observatory, University of Toronto, 26-Nov-1992.
- Secker, J., Harris, W.E., *A maximum-likelihood analysis of globular cluster luminosity distributions in the Virgo ellipticals*. McMaster University, 2-Dec-1992.
- Shore, S.N., Bolton, C.T., et al, *Goddard High Resolution Spectrograph observations of narrow discrete stellar wind absorption features in the ultraviolet spectrum of the O7.5 III star Xi Persei*. GSFC, 4-Dec-1992.

- Stetson, P.B., *Further progress in CCD photometry*. Dominion Astrophysical Observatory, 8-Sep-1992.
- Stetson, P.B., *Globular-cluster color-magnitude diagrams*. Dominion Astrophysical Observatory, 28-Sep-1992.
- St-Louis, N., et al, *Polarisation eclipse model of the Wolf-Rayet binary V444 Cygni with constraints on the stellar radii and an estimate of the WR mass-loss rate*. Obs. Mont Megantic, 26-Nov-1992.
- Strassmeier, K.G., Rice, J.B., Wehlau, W.H., Hill, G.M., Matthews, J.M., *Surface features of the lower atmosphere of HD 82558 = LW Hya*. University of Brandon, 28-Oct-1992.
- van den Bergh, S., *The age and size of the universe*. Dominion Astrophysical Observatory, 4-Nov-1992.
- van den Bergh, S., *Globular cluster orbits and second parameter effects*. Dominion Astrophysical Observatory, 4-Nov-1992.
- Welch, D.L., et al, *The variable stars of the young LMC cluster NGC 2164*. McMaster University, 28-Sep-1992.
- Yee, H.K.C., De Robertis, M.M., *Ly alpha and C IV narrow-band imaging of the gravitational lens 2237+030*. David Dunlap Observatory, University of Toronto, 8-Sep-1992.
- Yee, H.K.C., Filippenko, A.V., Tang, D., *A high-resolution gravitational lens survey*. David Dunlap Observatory, University of Toronto, 16-Sep-1992.

1992 NOTES FROM YORK UNIVERSITY

September 1992 marked the return of John Caldwell (ISTS) and Marshall McCall (Steward Observatory, Observatoire de Meudon, Tuorla Observatory) from sabbatical. In 1993-94, Michael De Robertis will be on sabbatical leave.

Kim Innanen had three long-term visitors during the year; Gene Byrd (Alabama), Tian-yi Huang (Nanjing, P.R. of China), and Seppo Mikkola (Turku, Finland).

Funding for the Space Astrophysics Laboratory (SAL) of the Institute of Space and Terrestrial Science (ISTS), directed by John Caldwell, was secured for a second five year term. SAL moved to different premises on the campus of York University in November.

Four new (MSc) graduate students arrived in 1992: Caroline Cumming (McGill), Irini Mathiou (Greece), Stanley Piechocinski (Queen's), and Benjamin Sugars (U of Calgary). H. Peter White successfully completed his MSc degree. His thesis was entitled, *Ultraviolet Investigations of Planetary Atmospheres*.

Both the undergraduate and graduate astronomy streams that were introduced last year have experienced sizeable increases in enrolments.

Upgrades to automate the 60cm telescope are proceeding on schedule. The 30cm telescope, while not yet fully automated, continues to operate in a variety of unattended modes for both student use and photometric data collection. The York Observatory acquired an ST-6 SBIG CCD camera which will be used to support the education of upper-year undergraduate and graduate students.

M.DE ROBERTIS

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