CASCA GRAD STUDENTS' WORKSHOP — U. MANITOBA FORT GARY CAMPUS

Saturday, June 12, 2004 — Samedi, le 12 juin 2004

The annual CASCA Grad Students Workshop will be held on Saturday, June 12, 2004, at the University of Manitoba Fort Gary campus. The theme of the workshop this year is **Data Mining and Image Processing.**

In the afternoon, there will be a panel discussion on the Long Range Plan and the future of Canadian Astronomy, specifically its implications for current graduate students. There will be plenty of time for discussion, so come with your questions!

Schedule

8:45 - 9:30	Intro/Grad student mixer		Beausejour Room, Univ.Centre
9:45 - 11:30	Colour image processing	J. English	Machray Hall Computer Lab
11:30 - 13:00	Lunch		Degrees, Univ.Centre
13:00 - 14:30	CADC workshop	D. Durand	Machray Hall Computer Lab
14:30 - 15:00	Break		
15:00 - 16:30	Panel Discussion		Beausejour Room, Univ.Centre
	"The Long Range Plan and the Future of Canadian Astronomy"		
	Panel Members: G. Fahlman, R. Taylor, and R. Puditz		
- 15:00	opening remarks	G. Fahlman	
- 15:10	opening remarks	R. Taylor	
- 15:20	opening remarks	R. Pudritz	
- 15:30	discussion/questions		
- 16:15	closing remarks/wrap-up		
16:30 - 17:30	CASCA Grad Student's Meeting		Beasejour Room, Univ.Centre
17:30 -	Grad Student's BBQ		St.John's College (to be confirmed)

Supporters

NRC - Herzberg Institute of Astrophysics
Graduate Students' Association, University of Manitoba
Faculty of Graduate Studies, University of Manitoba
Faculty of Science, University of Manitoba
Physics and Astronomy Graduate Students' Association, University of Manitoba

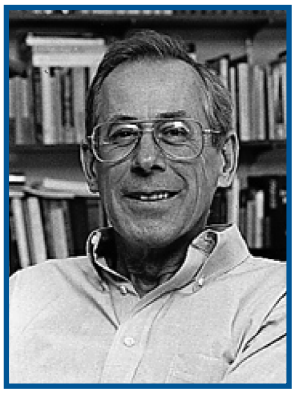
Graduate Student Barbecue des étudiants diplômés (All organizations/ Toutes les organisations)

For graduate students, there will be a free barbecue on the University of Manitoba campus on the Saturday evening. For students staying at the Delta Hotel, a shuttle service to the campus will be provided Students staying at campus residences will be provided directions to the barbecue site.

Il y aura un barbecue gratuit samedi soir pour les étudiants diplômés au campus de l'Université du Manitoba. Un service de navette jusqu'au campus sera offert aux étudiants qui logent à l'hôtel Delta. Des directions sur la façon de se rendre au site du barbecue seront remises aux étudiants qui logent dans les résidences du campus.

CAP HERZBERG MEMORIAL PUBLIC LECTURE / *CONFÉRENCE PUBLIQUE COMMÉMORATIVE HERZBERG DE L'ACP*
CASCA PUBLIC LECTURE IN ASTRONOMY / *CASCA CONFÉRENCE PUBLIQUE PLÉNIÈRE EN ASTRONOMIE*
DELTA HOTEL, BALLROOMS A/B/C

Sunday, June 13, 2004 **19h00** **Dimanche, le 13 juin 2004**



P. James E. Peebles

DR. P. JAMES E. PEEBLES, PRINCETON UNIVERSITY

"A Cosmic Picture Show : Images from Astronomy"

Some of the astronomical images I will present are meant to illustrate what we know about the large-scale nature of the world around us and how we have gone about discovering it; others are chosen just because they're pretty. Some of the images are close to what you can see with a pair of binoculars; others are numerical representations of what you would `see' if you had Superman's X-ray eyes, or eyes sensitive to radio waves or neutrinos. I'll show historical examples of the learning process in astronomy, both good -- Hubble's classification of the galaxies -- and not so good -- Lowell's idea that he was seeing canals on Mars -- and illustrations drawn from current debates about what is happening on scales ranging from black holes in the centers of galaxies to the expansion of the universe.

"Présentation d'images cosmiques : Images de l'astronomie"

Certaines des images astronomiques que je vais présenter sont destinées à illustrer ce que nous connaissons de la nature du monde qui nous entoure à grande échelle et ce qui nous a conduit à la découvrir; d'autres ont été choisies uniquement en raison de leur beauté. Certaines de ces images sont proches de ce que nous pouvons voir à l'aide de jumelles; d'autres sont des représentations numériques de ce que nous pourrions voir si nous possédions la vision à rayons-X de Superman ou des yeux sensibles aux ondes radio ou aux neutrinos. Je présenterai des exemples historiques de l'évolution de la connaissance en astronomie, des bons (classification Hubble des galaxies) et des moins bons (idée de Lowell qui aurait vu des canaux sur Mars), ainsi que des illustrations réalisées à partir de discussions récentes sur ce qui se produit à des échelles allant des trous noirs aux coeurs des galaxies à l'expansion de l'univers.

BIOGRAPHY

Born April 25, 1935 in Winnipeg, Manitoba, Canada, naturalized U.S. citizen 1991. Married to Alison Peebles with three children, Lesley, Ellen and Marion, six grandchildren.

1958 BS University of Manitoba; 1962 Ph.D. Princeton University; 1961-1962 Instructor, Princeton; 1962-64 Research Associate, Princeton; 1964-65 Research Staff Member, Princeton; 1965-68 Assistant Professor, Princeton; 1968-72 Associate Professor, Princeton; 1972-84 Professor Princeton; 1984-2000 Albert Einstein Professor of Science , Princeton; 2000 Albert Einstein Professor of Science Emeritus, Princeton.

Professional Societies: Fellow, American Academy of Arts and Sciences; Fellow, American Physical Society; Fellow, Royal Society; Fellow, Royal Society of Canada; Fellow, U.S. National Academy of Sciences; Member, American Astronomical Society; Member, American Association for the Advancement of Science.

Awards: 1977, A.C. Morrison Award in National Science, NY Academy of Sciences
1981, Eddington Medal, Royal Astronomical Society
1982, Heineman Prize, American Astronomical Society
1986, Doctor of Science, University of Toronto
1986, Doctor of Science, University of Chicago
1989, Doctor of Science, McMaster University
1989, Doctor of Science, University of Manitoba
1992, Robinson Prize, University of Newcastle upon Tyne
1992, Henry Norris Russell Lectureship of the AAS
1994, Silliman Lectureship, Yale
1994, Feshbach Lecturer, MIT
1995, Bruce Medal, Astronomical Society of the Pacific
1995, Lemaitre Award, Universite catholique de Louvain
1995, de Vaucouleurs Lectureship, University of Texas
1996, McPherson Lecturer, McGill University, October
1996, Doctor of Science, Universite catholique de Louvain, October
1997, Danz Professor, University of Washington, May
1997, Klein Lecturer, University of Stockholm, June
1997, Jansky Lectureship, NRAO
1997, Doctor Honoris Causa, Universidad Nacional de Cordoba, December
1998, Gold Medal, Royal Astronomical Society, UK
2000, Peter S. Gruber Foundation Award, September
2001, Oort Professor, Leidon University, May
2001, Harvey Prize Technion University, Israel
2003, Tomalla Foundation Prize, University of Geneva, June

Fourth Annual Physics Teacher Workshop
Monday, June 14, 2004
University of Manitoba, Winnipeg, Manitoba
Delta Hotel

Monday, June 14, 2004 - **Delta Hotel**, Room TBA

8:00 am **Registration and Refreshment**

8:30 am **Keynote Lecture by Dr. Helmy Sherif,** University of Alberta, **Winner of 2004 CAP Medal of Excellence in Physics Teaching.** Dr. Sherif has been named winner of this prestigious national medal for "outstanding physics teaching at both introductory and advanced levels, and for his exemplary work as a mentor to students and to former students." He has played a pivotal role in the physics careers of many students.

9:20 am **Demonstration of computer-based physics laboratory technology** by a Merlan Scientific representative**.**

10:20 am **Refreshment Break**

10:35 am **Fast Optimization of the Radiation Therapy of Tumours: The Impossible Possible** by Dr. S. P. Goldman, Dept. of Physics and Astronomy, University of Western Ontario. A crucial problem in radiation therapy is to optimize hundreds of beams so that the dose distribution is uniform inside the tumours and small inside organs at risk. A system of linear algebraic equations will handle this quickly but it is *impossible* to use: it results in negative beams! Instead we are forced to *search* numerically the optimal intensities, taking long computation times and yielding sometimes incorrect results. Our new solution made the *impossible* (a linear method) *possible* on physical grounds, delivering excellent dose distributions in times orders of magnitude shorter than present search methods.

11:25 am **Distance Learning from 820 km Straight Up: The Educational Potential of the MOST Space Telescope** by Dr. Jaymie Matthews, University of British Columbia. The MOST (Microvariability & Oscillations of STars) mission is the first all-Canadian scientific satellite in over 30 years. It is a small but powerful optical telescope and photometer in polar orbit, capable of detecting variations in the brightnesses of stars down to a few parts per million. It is searching for acoustic oscillations and convection in stars, and reflected light from planets outside the Solar System. MOST offers a great opportunity to introduce a wide range of physical, astronomical, technological and even political concepts in the classroom, all packaged in a "Humble" suitcase-sized observatory!

12:05 pm **LUNCH Sponsored by Canadian Institute for Photonic Innovation CIPI with guest speaker**

1:35 pm **Lost Amongst the Stars** by Heather R. Scott, Ridley College, St. Catherines, ON. Recent changes in the Manitoba science curriculum have placed greater emphasis on Astronomy in the Senior 1 course. For many teachers, a lack of expertise in this area of science can lead to incomplete or incorrect coverage of topics, or, in some cases, even exclusion. This workshop will address the concerns of teachers new to astronomy and provide ideas for suitable in-class projects, hands-on demonstrations and a comprehensive list of teacher resources. A question and answer session on all things astronomical will follow!

2:20 pm **Ongoing Professional Development Projects - BC Association of Physics Teachers** by Donald Mathewson, Kwantlen University College. The BC Association of Physics Teachers is a chapter of the American Association of Physics Teachers. Our membership is comprised of a wide cross-section of high school, college and university physics teachers. The BCAPT executive has recently embarked on an ambitious series of professional development projects for teachers that have been enthusiastically embraced by the physics teaching community and have positively impacted the BC physics teaching community. For those within CAP and its member institutions interested in outreach, some information about the BCAPT and its professional development programs will be presented.

2:35 pm **Refreshment and Exhibits Break**

3:00 pm **ALTA to CANALTA : Moving Towards a Canada Wide Network Of Cosmic Ray Telescopes** by Dr. Jim Pinfold, University of Alberta. The ALTA (Alberta Large Time Coincidence Array) collaboration in Alberta has developed and deployed a very large area sparse array in Alberta the scientific purpose of which is to search for a non-random high energy cosmic ray phenomena. The detectors are placed in high-schools and colleges around Alberta. One of the unique features of ALTA is its strong educational dimension due to the involvement of high-schools students and teachers. The ALTA project is presented in the talk, along with initial plans for the development of the CANALTA (CANadawide-ALTA) project across Canada.

Other Related Congress Activities

- Teachers who are planning to arrive early are invited to the public lecture **"A Cosmic Picture Show: Images from Astronomy**" given by Dr. Jim Peebles, Princeton University on Sunday, June 13 at 7:00 pm.
- There are joint CAP/CASCA/COMP sessions around the theme of Enriching Our Teaching Through Integration on Sunday, June 13.
- The Division of Physics Education is holding a series of sessions on the theme of New Directions in the Physics Curriculum on Tuesday, June 15.