

CITA Canadian Institute for
Theoretical Astrophysics



Institut canadien
d'astrophysique théorique **ICAT**

ANNUAL GENERAL MEETING

2014

Québec City, Québec

June 10, 2014

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Renewal of Membership
Special Resolution of Members: Continuing Corporation
under the provisions of the *Canada Not-for-Profit*
Corporations Act

Highlights of 2012-2013

FACULTY

- **Dick Bond**
- **Dan Green** (new faculty)
- **Peter Martin**
- **Norman Murray**, Director
- **Ue-Li Pen**, Associate Director
- **Harald Pfeiffer**, CRC Tier II received Tenure
- **Chris Thompson**

FACULTY/POSTDOC AWARDS

- **Dick Bond**
Queen Elizabeth II Diamond Jubilee Medal
- **Peter Martin**
CASCA's Executive Award for Outstanding Service
Queen Elizabeth II Diamond Jubilee Medal
- **Harald Pfeiffer**
Ontario Early Researcher Award

PDF RECRUITMENT

- **5** PDFs/SRAs and **2** CITA National Fellows recruited for 2013/2014
- **5** PDFs/SRAs and **1** CITA National Fellows recruited for 2014/2015

STAFF

- **Candace Duong**, Business Officer
- **Liz Murray**, Administrative Officer

COMPUTING

- **John Dubinski**, Computing Supervisor
- **Claire Yu**, HPC Specialist (started April 2014)

CITA Current Snapshot

NEW RESEARCH FELLOWS (Sept 2014)

206 applications for positions

Prayush Kumar (PhD Syracuse University 2014) numerical relativity

Pieter Meerbug (PhD U. of Amsterdam 2011) cosmology

Alexander Van Engelen (PhD McGill University 2012) CMB

Christa Van Laerhoven (PhD University of Arizona 2014) exoplanets

Haoran Yu (PhD Beijing Normal University 2014) N-body simulations

CURRENT FELLOWS:

- Marcelo Alvarez (2009)
- Fabio Antonini (2011)
- Kevin Blagrove (2006)
- Kipp Cannon (2010)
- Tony Chu (2011)
- Shane Davis (2010)
- Francois Foucart (2011)
- Ramandeep Gill (2012)
- Amir Hajian (2010)
- Zhiqi Huang (2013)
- Emmanuel Jacquet (2012)
- Takeshi Kobayashi (2011)
- J r my Leconte (2013)
- Min-Kai Lin (2011)
- Joel Meyers (2012)
- Quang Nguyen Luong (2011)
- Mike Nolta (2004)
- Evan O'connor (2012)
- Niels Opperman (2013)
- James Owen (2011)
- Carlos Palenzuela (2009)
- Ian Parrish (2012)
- Richard Shaw (2010)
- Linda Strubbe (2011)
- Aaron Zimmerman (2013)

CITA Current Snapshot

TO PERMANENT POSITIONS:

- **Shane Davis**, faculty, University of Virginia
- **Carlos Palenzuela**, staff scientist, UIB, Spain

TO OTHER POSITIONS:

- **Fabio Antonini**, postdoc (CIERA, Northwestern University)
- **Tony Chu**, postdoc (Princeton University)
- **Francois Foucart**, Einstein Fellowship (UC Berkeley)
- **Evan O'Connor**, Hubble Fellowship (North Carolina State U.)
- **James Owen**, Hubble Fellowship (IAS)

62% of former CITA postdocs and researchers are in permanent academic or research positions

25% are in postdoc and research positions poised for faculty positions (includes current postdocs at CITA)

13% have left academia

CITA Current Snapshot

CITA Alumni in Permanent or Tenure-Stream Positions

1. [Phil Armitage](#), Professor, University of Colorado, Boulder
2. [Phil Arras](#), Assistant Professor, University of Virginia
3. [Arif Babul](#), Professor, University of Victoria
4. [David Ballantyne](#), Assistant Professor, Georgia Tech
5. [Rennan Barkana](#), Senior Lecturer, Tel Aviv University
6. [Josh Barnes](#), Professor, Institute for Astronomy, University of Hawaii
7. [Peter Barnes](#), Staff Scientist, University of Florida
8. [Shantanu Basu](#), Professor, University of Western Ontario
9. [Andrei Beloborodov](#), Associate Professor, Columbia University
10. [Francis Bernardeau](#), Professor, CEA, Saclay, France
11. [Luc Binette](#), Associate Professor, UNAM, Instituto de Astronomia, Mexico
12. [Omer Blaes](#), Professor, University of California, Santa Barbara
13. [Latham Boyle](#), Junior Faculty, Perimeter Institute
14. [Avery Broderick](#), Professor, Perimeter Institute/University of Waterloo
15. [Matthew Browning](#), Faculty, University of Exeter
16. [Brian Chaboyer](#), Professor, Dartmouth College
17. [Tzuching Chang](#), Staff Scientist, ASIAA, Taiwan
18. [Phil Chang](#), Professor, University of Milwaukee
19. [Doron Chelouche](#), Professor, University of Haifa, Israel
20. [James Chiang](#), Staff Scientist, SLAC, Stanford
21. [Jungyeon Cho](#), Associate Professor, Chungnam National University
22. [Matt Choptuik](#), Professor, University of British Columbia
23. [Stephane Colombi](#), Chargé de Recherche, l'Institut d'Astrophysique, Paris
24. [Mathieu Compiègne](#), Staff Scientist, Laboratoire d'optique atmosphérique Université des Sciences et Technologies de Lille
25. [Carlo Contaldi](#), Lecturer, Imperial College
26. [Hugh Couchman](#), Professor, McMaster University
27. [Robert Crittenden](#), Reader, Institute of Cosmology and Gravitation, University of Portsmouth
28. [Neal Dalal](#), Professor, University of Illinois, Urbana-Champaign
29. [Luke Dones](#), Senior Research Scientist, Southwest Research Institute
30. [Olivier Doré](#), Senior Research Scientist, JPL/Caltech
31. [Amir El-Zant](#), Associate Professor, CTP, Zewail City for Science and Technology
32. [Adrienne Erickcek](#), Associate Professor, University of North Carolina
33. [Gary Felder](#), Professor, Smith College
34. [Hume Feldman](#), Professor, University of Kansas
35. [Jason Fiege](#), Assistant Professor, University of Manitoba
36. [Andrei Frolov](#), Assistant Professor, Simon Fraser University
37. [Brett Gladman](#), Professor, University of British Columbia
38. [Bradley Hansen](#), Associate Professor, UCLA
39. [Tatsuhiko Hasegawa](#), Associate Professor, ASIAA, Taiwan
40. [Henk Hoekstra](#), Associate Professor, Leiden Observatory
41. [Gary Holder](#), Assistant Professor, McGill University
42. [Matthew Holman](#), Senior Astrophysicist and Assoc. Director, Harvard Smithsonian Center for Astrophysics
43. [Ilian Iliev](#), Lecturer, Sussex University
44. [Natasha Ivanova](#), Assistant Professor, University of Alberta
45. [Andrew Jaffe](#), Lecturer, Imperial College
46. [Doug Johnstone](#), Assoc. Research Officer, Herzberg Institute of Astrophysics
47. [Anatoly Klypin](#), Professor, New Mexico State University
48. [Lloyd Knox](#), Professor, UC Davis

49. [Konrad Kuijken](#), Professor, Leiden University
50. [John Lattanzio](#), Reader and Deputy Head, Dept. of Mathematics, Monash University
51. [Alex Lazarian](#), Associate Professor, University of Wisconsin at Madison
52. [Hyung-Mok Lee](#), Professor, Seoul National University, Korea
53. [Man Hoi Lee](#), Associate Professor, University of Hong Kong
54. [Janna Levin](#), Professor, Barnard College, Columbia
55. [Yuri Levin](#), Senior Lecturer, Monash University
56. [Antony Lewis](#), Lecturer, University of Sussex
57. [Per Lilje](#), Professor, University of Oslo, Norway
58. [Yoram Lithwick](#), Assistant Professor, Northwestern University
59. [Nicole Lloyd-Ronning](#), Staff Scientist, Los Alamos National Lab
60. [Maxim Lyutikov](#), Assistant Professor, Purdue University
61. [Jerzy Madej](#), Faculty, Warsaw University
62. [John Magorrian](#), Lecturer, University of Oxford
63. [Subha Majumdar](#), Assistant Professor, TIFR, India
64. [Robert Maloney](#), Senior Lecturer, University of New South Wales
65. [Christopher Matzner](#), Associate Professor, University of Toronto
66. [Pat McDonald](#), Staff Scientist, Berkley Lab/NYU
67. [Mikhail Medvedev](#), Associate Professor, University of Kansas
68. [Avery Meiksin](#), Reader, University of Edinburgh, UK
69. [Brice Ménard](#), Professor, Johns Hopkins University
70. [Michael Merrifield](#), Professor, University of Nottingham
71. [David Merritt](#), Professor, Rochester Institute of Technology
72. [M. Miville-Deschenes](#), Staff Scientist, Institut d'Astrophysique Spatiale (Orsay, France)
73. [Kaya Mori](#), Staff Scientist, Columbia University
74. [Abdul Mroué](#), Faculty, NYU (Abu-Dhabi)
75. [Izumi Murakami](#), Professor, National Institute for Fusion Science, Japan
76. [Steve Myers](#), Staff Scientist, NRAO
77. [Priya Natarajan](#), Professor, Yale University
78. [Lorne Nelson](#), Professor, Bishop's University
79. [Alberto Noriega-Crespo](#), Research Scientist, IPAC, Caltech
80. [Michael Nowak](#), Staff Scientist, MIT
81. [Marco Peloso](#), Associate Professor, University of Minnesota
82. [Christoph Pfrommer](#), Research Scientist, Heidelberg Institute for Theoretical Studies
83. [Christopher Pichon](#), Chargé de Recherche, Institut d'astrophysique de Paris
84. [Dmitry Pogosyan](#), Professor, University of Alberta
85. [Simon Prunet](#), Staff Scientist, Institut d'Astrophysique de Paris
86. [Tom Quinn](#), Professor, University of Washington
87. [Alex Raga](#), Professor, UNAM, Instituto de Astronomia, Mexico
88. [Kevin Rauch](#), Staff Scientist, University of Maryland
89. [Derek Richardson](#), Professor, University of Maryland
90. [Barbara Ryden](#), Professor, Ohio State University
91. [Varun Sahni](#), Faculty, IUCAA, Pune, India
92. [Roman Scoccimarro](#), Associate Professor, New York University
93. [Nir Shaviv](#), Associate Professor, Racah Institute of Physics
94. [Tarun Souradeep](#), Faculty, IUCAA, Pune, India
95. [Seshadri Sridhar](#), Faculty, Raman Research Institute
96. [Glenn Starkman](#), Professor, Case Western Reserve University
97. [Albert Stebbins](#), Staff Scientist, Fermilab
98. [Eric Switzer](#), Staff Scientist, NASA Goddard
99. [Jean Francois Sygnet](#), Chargé de Recherche, Institut d'Astrophysique, Paris
100. [Istvan Szapudi](#), Professor, IfA, University of Hawaii
101. [Susan Terebey](#), Professor, California State University in Los Angeles
102. [Peter Thomas](#), Professor, University of Sussex, UK
103. [Christopher Thompson](#), Professor, CITA
104. [Jihad Touma](#), Faculty, American University of Beirut

105. [Rien van de Weygaert](#), Lecturer, Kapteyn Astronomical Institut, University of Groningen
106. [Ludo van Waerbeke](#), Associate Professor, University of British Columbia
107. [Rachel Webster](#), Professor, University of Melbourne, Australia
108. [Jason Weingartner](#), Associate Professor, George Mason University
109. [Mike West](#), Director of the Maria Mitchell Observatory
110. [Larry Widrow](#), Professor, Queen's University
111. [Gillian Wilson](#), Faculty, UC Riverside
112. [Yanqin Wu](#), Associate Professor, University of Toronto
113. [Huirong Yan](#), Professor, KIAA, Peking University
114. [Gustavo Yepes](#), Professor Titular, Universidad Autonoma Madrid, Spain
115. [Qingjuan Yu](#), Faculty, Peking University

CITA Current Snapshot

CITA ALUMNI in faculty positions in Canada

- **Arif Babul**, University of Victoria
- **Shantanu Basu**, University of Western Ontario
- **Latham Boyle**, Perimeter Institute
- **Avery Broderick**, Perimeter Institute/University of Waterloo
- **Matt Choptuik**, University of British Columbia
- **Hugh Couchman**, McMaster University
- **Jason Fiege**, University of Manitoba
- **Andrei Frolov**, Simon Fraser University
- **Brett Gladman**, University of British Columbia
- **Gil Holder**, McGill University
- **Natasha Ivanova**, University of Alberta
- **Doug Johnstone**, Senior Research Officer, NRC, HIA
- **Lev Kofman**, CITA, University of Toronto (deceased)
- **Christopher Matzner**, DAA, University of Toronto
- **Lorne Nelson**, Bishop's University
- **Dimitri Pogosyan**, University of Alberta
- **Christopher Thompson**, CITA, University of Toronto
- **Ludo van Waerbeke**, University of British Columbia
- **Larry Widrow**, Queen's University
- **Yanqin Wu**, DAA, University of Toronto

CITA NATIONAL FELLOWS in faculty positions in Canada

- **Mike Hudson**, University of Waterloo
- **Rob Thacker**, Saint Mary's University
- **Rachid Ouyed**, University of Calgary
- **James Wadsley**, McMaster University

CITA GRADUATE STUDENTS in faculty positions in Canada

- **Margot Mandy**, University of Northern British Columbia

CITA Current Snapshot

CITA COUNCIL MEMBERS 2013-2014

Norm Murray	Director, CITA
Jay Pratt	Vice-Dean, FAS, UofT
Andrew Cumming	McGill University (2016)
Dmitri Pogosyan	University of Alberta (2015)
Eric Poisson	University of Guelph (2017)
Alison Sills*	McMaster University (2014)
Ethan Vishniac**	Chair, University of Saskatchewan (2014)

***CASCA rep: 2-year term 2012-2014**

****Term expires: new council member to be elected**

3. National Programs

A. CITA NATIONAL FELLOWS

National Fellows are nominated by the host university and selected by CITA Council using the same quality criteria as for the CITA research fellows, along with strategic national considerations. Since the start of the program in 1988, we have named **71** National Fellows.

CITA provides 50% of the stipend up to \$55,000 for 2 years, plus up to \$6,000 research expenses. The remainder is provided by the host university. National Fellows are encouraged to visit CITA for extended periods of time.

CITA advertises the National Fellow positions in the AAS Job Register and on its website, coupling National Fellow visibility to CITA RA opportunities.

CITA helps in recruitment.

INCOMING

- **Antoine Strugarek**, Université de Montréal, nominated by Paul Charbonneau

CURRENT

- **Graeme Addison**, University of British Columbia, nominated by Mark Halpern
- **Rebecca Danos**, University of Manitoba, nominated by Samar Safi-Harb
- **Stephen Green**, University of Guelph, nominated by Luis Lehner/Eric Poisson
- **Duncan Hanson**, McGill University, nominated by Gil Holder
- **Joachim Harnois-Deraps**, University of British Columbia, nominated Ludovic Van Waerbeke
- **Tim Johannsen**, University of Waterloo, nominated by Avery Broderick
- **Jorge Moreno**, University of Victoria, nominated by Sara Ellison
- **Kathryn Volk**, University of British Columbia, nominated by Brett Gladman
- **Daniel Wilkins**, Saint Mary's University, nominated by Luigi Gallo

National Programs

B. SENIOR VISITING FELLOWS

Extended visits of faculty members from other Canadian universities.

2012-13	Andrei Frolov (Simon Fraser University)
2009-10	Denis Leahy (University of Calgary) Rachid Ouyed (University of Calgary) James Wadsley (McMaster University)
2008-09	Dimitri Pogosyan (University of Alberta) Eric Poisson (University of Guelph)
2007-08	Ralph Pudritz (McMaster University)
2005-06	Rachid Ouyed (University of Calgary) Norbert Bartel (York University)
2004-05	Lorne Nelson (Bishop's University)
2003-04	Hugh Couchman (McMaster University)
2002-03	Mike Hudson (University of Waterloo) Arif Babul (University of Victoria)
2000-01	Norbert Bartel (York University)
1999-00	Werner Israel (University of Victoria) Sun Kwok (University of Calgary) Marshall McCall (York University) Douglas Scott (University of British Columbia) Larry Widrow (Queen's University)
1998-99	Kim Innanen (York University) Lorne Nelson (Bishop's University)
1995-97	Hugh Couchman (Western Ontario) Dick Henriksen (Queen's University) Michael West (Saint Mary's University) Larry Widrow (Queen's University) Ralph Pudritz (McMaster University) Paul Wesson (Waterloo)

We are interested in new Senior Visiting Fellows:

Typically the fellowships provide funding to release the fellow from teaching and administrative duties for one academic term, or for sabbatical top-up. The Fellow is expected to spend a minimum of 50% of the supported time in residence at CITA. The CITA Senior Visiting Fellows Program began with start-up funds from the UofT Astronomy Department and has thrice received injections of funding from the UofT School of Graduate Studies and Faculty of Arts & Science.

National Programs

RECENT SABBATICAL VISITORS:

- **Carlo Contaldi**, Imperial College, Oct 2013 – Aug 2014

PREVIOUS SABBATICAL VISITORS:

- **Maxim Lyutikov**, Purdue University, Jan to Aug 2013
- **Scott Hughes**, MIT, July 2012 to June 2013
- **Stephen Lau**, University of New Mexico, Mar to Apr 2012
- **Peter Goldreich**, Caltech, 2 months/year (2009-2012)
- **Laura Mersini**, University of North Carolina, 1 year
- **Changbom Park**, University of Korea, 3 months
- **Denis Leahy**, University of Calgary, 1 month
- **James Wadsley**, McMaster University, 8 months
- **Bernard Carr**, Queen Mary University, 2 months x 2
- **Peter Goldreich**, Caltech, 1 month x 2
- **Rachid Ouyed**, University of Calgary, 4 months
- **Eric Poisson**, University of Waterloo, 1 year
- **Dimitri Pogosyan**, University of Alberta, 4 months
- **Gary Felder**, Smith College, 5 months
- **Francis Bernardeau**, Centre D'etudes de Saclay, 6 months
- **Ralph Pudritz**, McMaster University, 4 months
- **Richard Ellis**, Caltech, 2 months
- **Steve Myers**, NRAO, 3 months
- **Andreas Reisenegger**, Universidad Catholica in Santiago Chile
- **Joao Magueijo**, Imperial College, 1 year (joint CITA/PI visitor)
- **Sergei Shandarin**, University of Kansas, 6 months
- **Rien van de Weygaert**, University of Groningen, 1 month
- **Peter Coles**, University of Nottingham, 3 months
- **Norbert Bartel**, York University, 4 months
- **Rachid Ouyed**, University of Calgary, 4 months
- **Dong Lai**, Cornell University, visited for a term
- **Lorne Nelson**, Bishop's University, visited for a term
- **Ewan Stewart**, KAIST Korea, 6 months
- **Arif Babul**, University of Victoria, 4 months
- **Mike Hudson**, University of Waterloo, 4 months
- **Margot Mandy**, Univ. of Northern British Columbia, 2 months
- **Omer Blaes**, UC Santa Barbara, 3 months
- **Tongjie Zhang**, Beijing Normal University, 1 year

National Programs

LONG-TERM VISITORS (May 2013-April 2014): 9

<i>University of Waterloo</i>	Mike Fich	<i>CITA Visitor</i>
<i>University of Guelph</i>	Marcelo Ponce	<i>CITA Visitor</i>
<i>York University</i>	Alirez Rafiee	<i>CITA Visitor</i>
<i>Perimeter Institute</i>	Kendrick Smith	<i>CITA Visitor</i>
<i>Simon Fraser Institute</i>	Andrei Frolov	<i>CITA Visitor</i>
<i>University of Rochester</i>	Fan Wu	<i>CITA Visitor</i>
<i>Imperial College London</i>	Jonathan Horner	<i>CITA Visitor</i>
<i>GFSC</i>	Margaret Pan	<i>CITA Visitor</i>
<i>University of Cambridge</i>	Carrie MacTavish	<i>CITA Visitor</i>

SHORT-TERM VISITORS (May 2013 to April 2014): 133

CITA has a vigorous visitors program that brings in a large number of astronomy and physics faculty and researchers from abroad and Canadian Universities for both extended stays and shorter visits.

National Programs

C. PREDOCTORAL PROGRAM

Bringing students in their PhD programs to CITA for periods of a few months to a year has proven to be a great success. All candidates have come with their own funding. Participants in the program so far are:

- **Alban Farchi**, Ecole Polytechnique, April 2014 – August 2014
- **Anh Nguyen**, U. of Science and Technology, Hanoi, April 2014 – June 2014
- **Valentin Goblot**, Ecole Polytechnique, April 2013 – July 2013
- **Yu Yu**, Shanghai Observatory, August 2012 – Feb 2013
- **Gwendoline Stephan**, University of Paris, March – June 2012
- **Susana Valdez-Alvarado**, University of Guanajuato, March – August 2011
- **Haoran Yu**, Beijing Normal University, January 2011 – August 2012
- **Eleonore Saury**, IAS, France, October 2010 – August 2012
- **Khosrow Allaf-Akbari**, Princeton University, July 2010 – August 2011
- **Mark Bennett**, University of Melbourne, May – July 2010
- **Anders Pinzke**, Stockholm University, May 2010
- **Fabio Zandanel**, Instituto de Astrofisica de Andalucia, May to June 2010
- **Yuri Cavecchi**, Leiden University, June - July 2009
- **Francisco Villaescusa**, Universitat de Valencia, Sept to Dec 2009
- **Andreu Font-Ribera**, Spain, February to April 2009
- **Daniel Figuero**, Spain, August to December 2007
- **Marie Martig**, Ecole Centrale de Paris, 2006
- **Jean Coupon**, Observatoire de Paris, 2006
- **Jan Kratochvil**, Stanford, 2005-2006
- **Amir Hajian**, IUCAA, India, 2005
- **Doug Hanley**, Caltech, 2004
- **Wan-Il Park**, KAIST, Korea, 2004
- **Parker Troischt**, University of North Carolina, 2004
- **Francois Fressin**, Institut d'Astrophysique Spatiale, Paris, 2003
- **Stelios Kazantzidis**, Institute for Theoretical Physics, Zurich, 2003
- **Jie Wang**, Beijing Observatory, 2003
- **Shingkwong Wong**, National Taiwan University, 2003
- **Sebastien Ray**, École Normale Supérieure, 2002
- **Yacine Dolivet**, École Normale Supérieure, 2001
- **Kenji Kadota**, University of California, Berkeley, 2001
- **Tom Montroy**, University of California, Santa Barbara, 2001-2001
- **Aristotle Socrates**, University of California, Santa Barbara, 2001
- **Amanda Karakas**, Monash University, 2000

National Programs

C. PREDOCTORAL PROGRAM

Continued...

- **Juhan Kim**, Seoul National University, 2000-2001
- **Johannes Martin**, University of Jena, Germany, 2000
- **Sebastian Pichler**, Ludwig, Maximilians Universitaet, Germany, 2000-2001
- **Gary Felder**, Stanford, 1999-2000
- **Céline Anthoine**, École Normale Supérieure, 1999
- **Colin Borys**, University of British Columbia, 1999

National Programs

D. GRADUATE STUDENTS (2013-2014)

- **Jonathan Braden**, (Physics) Supervised by Dick Bond/Eric Poppitz
- **Liam Connor**, (Astronomy) Supervised by Ue-Li Pen/Richard Shaw
- **Jeffrey Emberson**, (Astronomy) Supervised by Ue-Li Pen
- **Daniela Gonclaves**, (Astronomy) Supervised by Peter Martin
- **Derek Inmand**, (Physics) Supervised by Ue-Li Pen
- **Marcel Kehl**, (Physics) Supervised by Harald Pfeiffer
- **Yevgeni Kissin**, (Astronomy) Supervised by Chris Thompson
- **Adam Lewis**, (Physics) Supervised by Harald Pfeiffer
- **Sergei Ossokine**, (Astronomy) Supervised by Harald Pfeiffer
- **Snezana Prodan**, (Physics) Supervised by Norm Murray
- **Matt Russo**, (Physics) Supervised by Chris Thompson
- **Nick Tacik**, (Astronomy) Supervised by Harald Pfeiffer
- **Hanbo Wu**, (Physics) Supervised by Norm Murray
- **Jielai Zhang**, (Astronomy) Supervised by Peter Martin/Bob Abraham

National Programs

E. SUMMER UNDERGRADUATES

This summer there are **9** summer students working with faculty in collaboration with many of the postdoctoral fellows, including **2** who have won the NSERC Undergraduate Summer Awards.

NSERC:

- Natalie Price-Jones (Murray/Linda Strubbe)
- Chao Wang (Bond/Zhiqi Huang)

NON-NSERC:

- Anita Bahmanyar (Bond/Alvarez/Hajian)
- Vivian Britto (Joel Meyers)
- Ryan Cloutier (Peter Martin)
- Aaron Goldberg (James Owen/Emmanuel Jacquet)
- Abdul Moiz Khatri (Murray/Paola)
- Robert Les (Murray/Min-Kai Lin)
- Ayushi Singh (Martin/Quang Nguyen)

CTA200H – Astrophysical HPC (Taught by Ue-Li Pen):

- ALL summer students
- Zack Zajac
- Alban Farchi
- Derek Inman
- Anh Nguyen

National Programs

F. COMPUTATIONAL UNDERGRADUATE STUDENTS

Thomas Nemat, UofT PEY undergraduate student
Maria-Rafalia Tsimpoukello, UofT PEY undergraduate student
Jess Ross, Assistant to the Systems Manager, Co-op student
Lawrence Kim, Assistant to the Systems Manager, Co-op student
Ahron Train, Assistant to the Systems Manager, Co-op student
Bo Liu, PEY undergraduate student
David Song, Assistant to the Systems Manager, Co-op student
Dusan Andric, PEY undergraduate student
Andre Resnick, Assistant to the Systems Manager, co-op student
Davinder Singh, Assistant to the Systems Manager, co-op student
Owaiz Haji, Assistant to the Systems Manager, co-op student
Anthony Paulozza, Assistant to the Systems Manager, co-op student
Alex Hughson, Assistant to the Systems Manager, co-op student
Radu Nitu, Assistant to the Systems Manager, co-op student
Jacob de Bruyn, Assistant to the Systems Manager, co-op student
Alex Zenkov, Assistant to the Systems Manager, co-op student
Paul Millerd, Assistant to the Systems Manager, co-op student
Alex Zenkov, Assistant to the Systems Manager, co-op student
Jason Chong, Assistant to the Systems Manager, co-op student
Peter Wagner, Assistant to the Systems Manager, co-op student
Jason Chong, Assistant to the Systems Manager, co-op student
Peter Wagner, Assistant to the Systems Manager, co-op student
Philip Petracca, Assistant to the Systems Manager, co-op student
Mubdi Rahman, Summer student web assistant, windows
Steven Di Rocco, Assistant to the Systems Manager, co-op student
Steven D’Cruz, Assistant to the Systems Manager, co-op student
Steven Di Rocco, Assistant to the Systems Manager, co-op student
David Wu, Assistant to the Systems Manager, co-op student
Don Banh, Assistant to the Systems Manager
Filip Lazar, Assistant to the Systems Manager, co-op student
Nishant Faria, Assistant to the Systems Manager

4. CITA ACTIVITY

A. SACKLER VISITING ASTROPHYSICIST

Each year CITA invites an internationally distinguished scholar conducting research in theoretical astrophysics to give a Public Lecture and a technical seminar at CITA, and to interact with faculty, research fellows and graduate students. This program is funded by an endowment, the Raymond and Beverly Sackler Visiting Astrophysicist Program. The visit is the highlight of the academic year at CITA and the Public Talk generally attracts a large public audience.

- **Sir Martin Rees (Lord Martin)**, Cambridge, 1997-1998
- **Peter Goldreich**, Caltech, 1998-1999
- **Frank Shu**, UC Berkeley, 1999-2000
- **Jim Peebles**, Princeton, 2000-2001
- **John Bahcall**, Princeton, 2001-2002
- **Andrei Linde**, Stanford, 2002-2003
- **George Efstathiou**, Cambridge, 2003-2004
- **Chris McKee**, UC Berkeley, 2004-2005
- **Rashid Sunyaev**, Max-Planck, 2005-2006
- **Scott Tremaine**, IAS Princeton, 2006-2007
- **Kip Thorne**, Caltech, 2007-2008
- **Roger Blandford**, Stanford, 2008-2009
- **Jerry Ostriker**, Princeton University, 2009-2010
- **Leonard Susskind**, Stanford University, 2010-2011
- **Donald Lynden-Bell**, Cambridge University, 2011-2012
- **Joe Silk**, Oxford University, 2013-2014

CITA ACTIVITY...

B. SUPPORT FOR SCIENTIFIC MEETINGS (2013-2014)

As part of CITA's national mandate, the aim of this program is to promote interaction, collaboration and exchange of scientific results within the Canadian and international astrophysics communities.

- **Theory Canada 8**, May 23-26, 2013, Bishop's University (Organizer: Valerio Faraoni)
- **Eastern Gravity Meeting**, June 7-8, 2013, CITA, University of Toronto (Organizer: Harald Pfeiffer)
- **Cosmological Frontiers in Fundamental Physics**, July 8-11, 2013, Perimeter Institute (Organizer: Latham Boyle)
- **Women in Physics**, July 25-27, 2013, Simon Fraser University, (Organizer: Fatemeh Rostamzadeh)
- **UofT Women in Astronomy Luncheon**, March 10, 2014, UofT (Organizer: Shelley Wright)
- **CITA/Dunlap ALMA Day**, March 14, 2014, CITA, UofT (Organizer: Quang Nguyen)
- **Stellar Tango at the Rockies**, March 24-28, 2014, Lake Louise, Alberta (Organizer: Natasha Ivanova)
- **15th Canadian Conference on General Relativity**, May 21-23, 2014, University of Winnipeg (Organizer: Andrew Frey)

CITA ACTIVITY

C. AWARDS

BEATRICE D. TREMAINE FELLOWSHIP

This is an endowed award given annually on the basis of outstanding research to a current CITA research fellow.

- 2013: Francoic Foucart**
- 2012: Shane Davis**
- 2011: Avery Broderick**
- 2010: Jens Chluba**
- 2009: Neal Dalal**
- 2008: Patrick McDonald**
- 2007: Natasha Ivanova**
- 2006: Michael Nolte**
- 2005: Jonathan Sievers**
- 2004: Carlo Contaldi**
- 2003: Yuri Levin**
- 2002: Andrei Beloborodov**
- 2001: Henk Hoekstra**
- 2000: Nir Shaviv**
- 1999: Dmitri Pogosyan**

CITA ACTIVITY

C. AWARDS

JEFFREY L. BISHOP FELLOWSHIP

Jeffrey Bishop was one of the first group of postdocs at CITA. He died tragically in an accident shortly after leaving CITA. In his memory his mother gives a donation biennially.

- 2013: Marcelo Alvarez**
- 2011: Carlos Palenzuela**
- 2009: Matt Browning**
- 2007: Yoram Lithwick**
- 2005: Jonathan Dursi**
- 2003: Matthias Liebendorfer**
- 2001: Yanqin Wu**
- 1999: Phil Arras**
- 1997: John Dubinski**
- 1995: Kevin Rauch**
- 1993: Janna Levin**
- 1991: Gerry Quinlan**
- 1990: Konrad Kuijken**

CITA ACTIVITY

D. SCIENTIFIC CONTRIBUTIONS

Faculty and Researchers at CITA published over **180** papers and preprints in 2013-2014.

E. CITA WEBSITE

www.cita.utoronto.ca lists all upcoming events, latest news, information on current research initiatives, current job opportunities and visitor information. The website also provides archives on all talks, seminars, meetings, workshops and special lectures.

F. CITA WEB CASTING

CITA provides webcasts of all our seminars, lectures and talks. Archives of webcasts, audio, video and slides are recorded and are accessible at the CITA seminar page.

G. SUPPORT FOR VISITS BY CITA FELLOWS

The aim of this program is to promote professional interactions within the Canadian theoretical astrophysics community, by helping to defray the travel costs of CITA researchers who are invited to visit Canadian universities outside Toronto. Please contact CITA if you are interested in having a CITA postdoc or researcher give a talk at your institute.

H. LECTURES and SEMINARS

Both CITA professors and postdoctoral fellows give numerous lectures and seminars at institutions across North America and around the world, as well as presentations at scientific meetings. The total number for 2013- 2014 exceeds **120**.

CITA hosted more than **60** seminars from May 2013 to April 2014. CITA typically hosts 2 seminars per week. All seminars can now be viewed on the CITA website.

CITA ACTIVITY

I. WEEKLY JOURNAL CLUB

Communication in astronomy is enhanced by the Astro-ph pre-print server, which posts about 30 papers per day, submitted by astronomers from around the world. A selection of these papers is discussed for an hour over lunch on Wednesdays. Since CITA postdoctoral fellows cover every field in astronomy, this sharing of expertise enhances learning for everybody at CITA.

J. WEEKLY COSMOLOGY DISCUSSION

The Friday cosmology discussion provides a venue for discussing new papers in cosmology, and for informal presentations by graduate students, postdocs, faculty, and visitors. The discussion is facilitated through the use of a bookmark club on the CosmoCoffee website, where contributors post papers from the arXiv preprint server, and a record is kept of all papers discussed. The discussion allows the sizeable CITA cosmology community to catch up on each other's research and to have in-depth discussions on the latest developments in the field.

K. FLUID DISCUSSION GROUP

The Thursday fluids discussion group provides the framework for CITAzens to discuss various topics astrophysics fluid dynamics. The meetings are either centred around discussing one-or-two recent related papers in depth, or the meetings are lead by a single CITAZen providing background and a discussion of a project they are currently involved in researching. Also on occasion the meeting is used to allow visitors to discuss some of their work in a informal setting.

L. WEEKLY NUMERICAL RELATIVITY MEETING

The weekly Numerical Relativity Meeting allows students and postdocs to gain in-depth knowledge in this research area. The style of this meeting is varied, encompassing participants presenting their own research, discussion of arXive preprints, in depth discussions with visitors, and prepared literature search and presentation on specific topics.

CITA ACTIVITY

M. SCIENTIFIC EXCHANGE PROGRAMS

Purpose: To enhance the scientific breadth of young researchers, as well as scientific interactions between CITA and other institutions.

Current Programs:

Kavli Institute for Theoretical Astrophysics, UC Santa Barbara

Max Planck Institute for Astrophysics, Germany

Academia Sinica Institute of Astronomy and Astrophysics, Taiwan

N. CITA and High Performance Computing

CITA and High Performance Computing (HPC): CITA provides a complex and diverse high-performance computing environment for research in astrophysics. CITA continues to operate a 200-node/1600 core cluster onsite for parallel numerical simulation. The cluster is augmented by 9 large-memory multi-core servers for more specialized tasks. CITA also provides 60 workstations for researchers with advanced graphics capabilities and GPU-enhanced computing on 11 machines. The computing environment is set up with a centralized software system containing the latest versions of compilers, commercial and open source scientific software and parallel computing libraries. This platform allows scientists an efficient means to develop and deploy new simulation software, analyze observational data as well as post-process and visualize results. The operating systems and software are continually upgraded on all platforms providing a state-of-the-art working environment for code development and data analysis. CITA also provides a large, high-performance disk storage and backup system for data intensive research. The system currently contains more than 700 TBytes of storage capacity with approximately 200TB of new space added this past year with the purchase of new equipment. These facilities are provided through national programs and collaborations.

HPC capability for the astrophysics community is also provided by Compute Canada and seven associated consortia including the SciNet Consortium located at the University of Toronto. CITA was instrumental in founding SciNet and currently most research computing is done using SciNet's facilities. With assistance from SciNet, CITA has operated a special-purpose 49-node cluster equipped with 98 GPUs since 2012. The new equipment was procured using the CFI Leadership Opportunity Fund (LOF) granted to Harald Pfeiffer for his work on GPU-enhanced software for simulating colliding blackholes. The system is operated by SciNet and available to all researchers in the community interested in using GPUs for simulation. CITA researchers are also provided with a high-speed network connection to the SciNet datacentre to transfer data rapidly between facilities.

CITA ACTIVITY

O. Research Collaborations

CITA faculty and postdoctoral fellows are engaged in international and Canadian collaborations.

Current collaborations include:

Planck (Bond, Martin, Huang), ACTpol (Bond, Hajian, Huang, Nolta), Spider (Bond), Mustang-2 on GBT (Bond), SXS Collaboration with Caltech, Cornell, Fullerton, Washington State (Pfeiffer, Foucart, Mroué, Chu, MacDonald, Tacik, O'Connor), NRAR Collaboration with 15 other institutions (Pfeiffer, Mroué, MacDonald, Chu), NINJA-2 Collaboration with 20 other institutions (Pfeiffer, MacDonald, Mroué), the Canadian Hydrogen Intensity Mapping Experiment (CHIME; Pen, Bond), the CCAT telescope with Caltech, Cornell, Bonn, and other institutions in Canada (Murray), and so forth. CITA is also the only Canadian member institution of the LIGO Scientific Collaboration (Cannon, Pfeiffer), among others.

5. New Memberships Applications and Renewals

NEW MEMBERSHIP APPLICATIONS:

- Dan Green, CITA
- Gary Hinshaw, University of British Columbia

RENEWAL APPLICATIONS:

- Jeremy Heyl (UBC)
- Norman Murray (CITA)
- Juilo Navarro (Victoria)
- Kris Sigurdson (UBC)

CITA Inc. Memberships

Niayesh Afshordi (Perimeter) 2018
Murray Alexander (NRC) 2015
Arif Babul (Victoria) 2015
Pierre Bastien (Montréal) 2015
Shantanu Basu (Western) 2015
Dick Bond (CITA) 2016
Latham Boyle (Perimeter) 2016
Avery Broderick (PI/Waterlo) 2017
Ray Carlberg (Toronto) 2016
Paul Charbonneau (Montréal) 2017
David Clarke (St. Mary's) 2015
Alan Coley (Dalhousie) 2015
Hugh Couchman (McMaster) 2015
Andrew Cumming (McGill) 2017
Robert Deupree (St. Mary's) 2015
Martin Duncan (Queen's) 2015
Charles Dyer (Toronto) 2016
Mike Fich (Waterloo) 2013
Jason D. Fiege (Manitoba) 2013
Andrei Frolov (SFU) 2017
Brett Gladman (UBC) 2017
David Guenther (St. Mary's) 2017
Mark Halpern (UBC) 2016
David Harwick (Victoria)*
Richard Henriksen (Queen's)*
Falk Herwig (Victoria) 2015
Jeremy Heyl (UBC) 2014
Gilbert Holder (McGill) 2017
Mike Hudson (Waterloo) 2016
Werner Israel (Victoria) *

Natasha Ivanova (Alberta) 2015
Doug Johnstone (HIA NRC at Victoria) 2015
Sun Kwok (Hong Kong Univ) 2015
Kayall Lake (Queen's) 2016
Denis Leahy (Calgary) 2016
Luis Lehner (Guelph/PI) 2016
Margot Mandy (UNBC) 2015
Michael Marlborough (Western)*
Hugo Martel (Laval) 2015
Peter Martin (CITA) 2015
Christopher Matzner (Toronto) 2017
Romas Mitalas (Western)*
George Mitchell (St. Mary's)*
Sharon Morsink (Alberta) 2016
Norman Murray (CITA) 2014
Julio Navarro (Victoria) 2014
Lorne Nelson (Bishop's) 2016
Rachid Ouyed (Calgary) 2015
Ue-Li Pen (CITA) 2013
Harald Pfeiffer (CITA) 2015
Serge Pineault (Laval) 2016
Levon Pogolian (SFU) 2017
Dmitri Pogosyan (Alberta) 2013
Eric Poisson (Guelph) 2016
Ralph Pudritz (McMaster) 2013
Douglas Scott (UBC) 2013
Ian Short (St. Mary's) 2015
Kris Sigurdson (UBC) 2014
Alison Sills (McMaster) 2018
Glenn Starkman (Case Western) 2015

CITA Inc. Memberships

Cont'd...

Peter Sutherland (McMaster) 2016
James Taylor (Waterloo) 2013
Robert Thacker (Queen's) 2017
Chris Thompson (CITA) 2016
Scott Tremaine (IAS, Princeton)*
Don Vandenberg (Victoria)*
Ludo van Waerbeke (UBC) 2015
Ethan Vishniac (McMaster) 2013
James Wadsley (McMaster) 2013
Michael West (U. Hawaii, Hilo) 2015
Larry Widrow (Queen's) 2015
Paul Wiegert (Western) 2015

* honorary members

CITA on the WWW

www.cita.utoronto.ca

On the website, you will find useful information on CITA, including current events and seminars, our annual reports, information for visitors, a list of current researchers, students and personnel, etc.

A new website has been launched!

Pillars of Support

CITA Inc. and NSERC

NSERC Support: Special Program to Collaborative Special Program to Institute Grant (as with the 3 Math Institutes, Fields, CRM, PIMS) tied in with 4 year NSERC Reallocation (1999-2003, 2003-07)

Institute Grants under MRS, Major Research Support (2008-2012) and again from 2012-2014. While the MRS program has been suspended, NSERC has expressed a strong interest in supporting CITA beyond the current round of funding.

Faculty of Arts and Science @ UofT

Institute in the School of Graduate Studies, 1986-2005

Institute in the Faculty of Arts & Science, July 2005 (extremely positive reviews Fall 2006)

CIFAR Cosmology and Gravity Program

Critical node of the CIFAR Cosmology and Gravity Program (3 Fellows - including Program Director until July 1, 2017)

Others

NSERC Operating Grants for Faculty, CFI for computing, External Fellowships for PDFs, NSERC/CFI/CSA collaborative grants and other targets of opportunity