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## Education

**Ph.D.**, Theoretical Physics, Caltech, 1979; Thesis Advisor: *W.A. Fowler, Nobel Laureate*

**M.S.**, Theoretical Physics, Caltech, 1975.

**B.Sc.**, Mathematics and Physics, University of Toronto, 1973.

## Research Experience

Director... July 2012 – June 2017 CIFAR Cosmology & Gravity Program

Director... July 2007 – June 2012 CIFAR Cosmology & Gravity Program

Director... July 2002 – June 2007 CIFAR Cosmology & Gravity Program

Director... July 1996 – June 2001; July 2001-June 2006 CITA

University Professor ... Jan. 2000 – present ... UofT

Professor ... July 1987 – Dec. 1999 ... CITA

Cross-appointed Professor July 1985 – present ... UofT Depts. of Astronomy and Physics

Acting Director... July 1994 – July 1995 ... CITA

Acting Director... July 1990 – July 1991 ... CITA

Associate Professor ... July 1985 – June 1987 ... CITA

Associate Professor ... Sept. 1985 – May 1987 ... Physics ... Stanford U.

Assistant Professor ... Sept. 1981 – August 1985 ... Physics ... Stanford U.

Affiliate Member, Perimeter Institute for Theoretical Physics ... 2002 –

Sacker Visitor, Institute of Astronomy, Cambridge University, July-September 2008

Visiting Faculty Associate, Caltech, May-June 2008

Visiting Scientist, KIPAC and SLAC, April 2008

Visiting Scientist, Stanford Institute for Theoretical Physics, Stanford University, March 2008

Visiting Scientist, Institute for Astronomy, University of Hawaii, February 2008

Humboldt Fellow, Max Planck Institute for Astrophysics, October-January 2007

Member, Kavli Institute for Theoretical Physics China, Beijing, November 2007

Visiting Professor, 1<sup>ere</sup> class ... Jan. 2003 – July 2003 ... University of Paris/IAP/IAS

Member ... Nov. 2002 – Dec. 2002 ... KITP, USCB

Moore Scholar ... September 2002 – Dec. 2002 ... Caltech

Member ... July-Aug., Dec. 1999 ... Isaac Newton Institute ... Cambridge

Visiting Research Physicist ... Feb. – June 1995 ... Inst. for Theoretical Physics ... UC Santa Barbara

Directeur de Recherche Associé 4ème échelon ... Aug. 1993 – Jan. 1994, Jan. – May 1996 ...

Institut d'Astrophysique de Paris

Member ... June 1984 – Aug. 1984, Nov. 1988, Mar. 2000, July 2000 ... ITP ... UCSB

Research Fellow ... July 1982 – Sept. 1983 ... Institute of Astronomy ... Cambridge U.

Postdoctoral Fellow/Lecturer ... Sept. 1978 – Sept. 1981 ... Astronomy ... U.C. Berkeley

Research Assistant ... Sept. 1973 – Sept. 1978 ... Kellogg Radiation Lab ... Caltech

Visiting Scientist ... Sept. 1976 – Mar. 1977 ... Nuclear Theory ... Neils Bohr Institute

Scientist ... July 1975 – Jan. 1976 ... Gamma Ray Astronomy ... JPL, Pasadena

## Awards and Honours

2016 D.Sc. (H.C.), Doctor of Science (Honoris Causa), St. Mary's University, Halifax  
2012 The Queen Elizabeth II Diamond Jubilee Medal  
2011 Foreign Associate of the US National Academy of Sciences  
2010 Canadian Association of Physicists Medal for Lifetime Achievement in Physics, the first award to an astrophysicist  
2009 Henry Marshall Tory Medal, the Royal Society of Canada's highest honour for Outstanding Research in the Physical Sciences or Mathematics, awarded biennially  
2008 Gruber Prize in Cosmology  
2008 Order of Ontario, O.Ont.  
2007 Alexander von Humboldt Research Award - Germany's highest award for career lifetime achievement of non-German academics  
2007 Killam Prize in the Natural Sciences - Canada's most distinguished annual award for outstanding career achievement  
2006 Herzberg Gold Medal - highest Canadian Research Award for Science  
2005 one of three Herzberg Gold Medal Finalists  
2005 Officer in the Order of Canada, O.C.  
2003 NSERC Award of Excellence; one of three Herzberg Gold Medal Finalists  
2003 Honorary Foreign Member, American Academy of Arts and Sciences FHM-AAAS  
2003 Inaugural Member, Etobian Gallery of Distinction, ECI, Toronto  
2002 Moore Scholar, Caltech  
2002 Dannie Heineman Prize, AAS and AIP  
2001 Fellow of the Institute of Physics, UK, FInstP; also Chartered Physicist ChP  
2001 Fellow of the Royal Society of London, FRS  
2000 University Professor, University of Toronto's Highest Honour for Professors  
1998 Institut de France, Académie des Sciences / Royal Society of Canada Exchange Lecturer  
1998 Fellow of the American Physical Society, FAPS  
1998 CAP/CRM Prize in Theoretical and Mathematical Physics  
1996 Fellow of the Royal Society of Canada, FRSC  
1995 Beals Prize, Canadian Astronomical Society  
1989 E.W.R. Steacie Prize, NRC  
1988 E.W.R. Steacie Fellow, NSERC 1989-91  
1986 - Fellow, Canadian Institute for Advanced Research  
1985 - 1986 Associate, Canadian Institute for Advanced Research  
1985 Alfred P. Sloan Foundation Research Fellow, 1985-89  
1982-1983 Fellow of Churchill College, Cambridge University  
1974-1975 Richard P. Feynman Fellowship, Caltech

## Professional Memberships

American Academy of Arts and Sciences; American Astronomical Society; American Physical Society; Canadian Astronomical Society; Canadian Association of Physicists; Institute of Physics; International Astronomical Union; Royal Society of Canada; Royal Society of London; US National Academy of Sciences

## Career Numerics

**Papers:** 451 Total, 342 Refereed Journals, 229 in 2010-2016, 51 Invited Papers, Book Chapters and Reviews, 58 Contributed Papers; citations from Google Scholar  
[scholar.google.com/citations?hl=en&user=bKrJyyUAAAAJ&pagesize=100&view\\_op=list\\_works&cstart=10](https://scholar.google.com/citations?hl=en&user=bKrJyyUAAAAJ&pagesize=100&view_op=list_works&cstart=10)

(more complete than NASA ADS or InSPIRES), yielding 53233 as of Apr 2016, 26917 since 2011; with h-index = 97 (number of papers with  $> h$  citations), 77 since 2011; with i10-index = 276 (number of papers with at least ten citations from others), 220 since 2011; as of Apr 2016, using InSPIRES terminology: 24 renowned (500+ cites), 23 famous (250-499), 52 very well-known (100-249), 58 well-known (50-99), 122 known (10-49); “highly cited researcher” in ISIHighlyCited.com; most highly cited Cdn astronomer 1981-97 (*source D. Burstein 2000, Bull Amer Astron Soc 32*); Who’s Who in the World 25th Anniversary edition; Who’s Who in the World; Who’s Who in America; Who’s Who in Canada; Who’s Who in Science and Engineering; *etc.*

**Conference Presentations:** 263 Total, 228 Invited Conference Talks (including 16 closing summary talks, 7 opening introductory talks and 2 after dinner speeches); 54 Contributed Conference Talks and Poster Papers

**Other Presentations:** 23 Public Lectures; 98 Physics and Astronomy Colloquia; 62 Physics and Astronomy Seminars

**Training of High Quality Personnel:** 25+35 PDFs/SrRAs (direct mentoring); 12 grad students; 20 summer undergraduates

**Teaching:** 11 Courses, 5 Graduate and 6 Undergraduate; 4 Astronomy, 7 Physics, numerous graduate and undergraduate astronomy research supervision courses, numerous international lecture courses

**Grants  $\geq$  2000:** CITA NSERC 1999-2003 (PI), 2003-2007 (PI), 2007-11 (co-I), 2011-16 (co-I); 2016-21 (co-I); NSERC SAR 2000-03 (PI); NSERC Award of Excellence 2003, 2005 (PI); CSA Planck-HFI 2002-04, 2005-09, 2010-11, 2011-13, 2013-16 (PI); NSERC Discovery 2002-06, 2007-12, 2012-17; NSERC Accelerator Grant 2012-15; NSERC/CSA joint program 2004-06 (co-I); NSERC Boomerang 2004-06 (co-I); NSERC DRAO 2006-08 (co-I); NSERC Herzberg Gold Medal 2007-11; CIFAR funding 1986- (director 2002-07, 2007-12, 2012-17); University Professor Award 2000-

**Team Work:** Planck Co-Investigator, High Frequency Instrument (HFI); Canadian Space Agency Principal Investigator for Planck HFI; “Planck Scientist” 2007-; HFI Core Team member; Planck Editorial Board 2010-; NASA US Planck Data Analysis Review Committee 2002-; Team Member for BOOMERANG98 2000-; CBI 2000-04; CBIpol 2003-; CBI2 2006-; BOOMERANG03 (2002-); ACBAR (2002-2009); ACT 2006-; Spider 2005-; CSA Cosmic Microwave Background Discipline Working Group, 2007-2010; Mustang2 2010-; ACTpol 2010-; ABS 2010-; CHIME (21 cm BAO) 2009-; SKA Cosmology 2015-; Advanced ACTpol 2015-

## External Board Memberships

**1987-** Member of 92 Scientific Conference Organizing Committees; Chair of 23; Member or Chair of 31 external advisory committees or Board of Directors.

**2015-** Simons Foundation Fellow Committee

**2012-** Kavli Institute for Cosmology in Cambridge Advisory Board

**2011-** Korean Institute for Advanced Study Advisory Board

**2008** ad hoc committee on appointments, Institute for Advanced Study’s School of Natural Science, November 2008

**2008** Max Planck Society Research Field Commission for Astrophysics

**2007-2010** Member-at-Large of the Corporation, Fields Institute for Research in the Mathematical Sciences

**2007-08** Vice Chair, Review Panel for the Institute for Advanced Study’s School of Natural Science. Site visit November 2007.

**2007-2010** Kavli Institute for Cosmological Physics (Chicago) Advisory Board

**2007-2010** Kavli Institute for Theoretical Physics (UCSB) Science Advisory Board  
**2006-2007** Cambridge University Institute of Astronomy and Cavendish Astrophysics Review Panel (Kavli Institute Phase I and II)  
**2006** Korean Institute for Advanced Study Physics Evaluation Committee  
**2006-2011** Rutherford Medal Committee, Royal Society of Canada, Chair 2010, 2011  
**2006** Member, Science and Technology Forum, Alberta, June  
**2005** External Cosmology Faculty Search Committee, Perimeter Institute for Theoretical Physics  
**2005** US NSF Physics Frontier Institutes Evaluation Committee for the Kavli Institute for Cosmological Physics, University of Chicago  
**2005-** Advisory Board, Pacific Institute of Theoretical Physics (UBC-based)  
**2004** Member, NASA Committee to Review US Data Analysis of Planck  
**2004-2007** Board of Directors, Fields Institute for Research in the Mathematical Sciences; also Member of the Scientific Nominating Committee  
**2004-2010** Fachbeirat Advisory Board to the Max Planck Society for the Max Planck Institute for Astrophysics, Garching, Munich; Chair 2007  
**2003-2007** Henry Marshall Tory Medal Committee, Royal Society of Canada  
**2003-** Sloan Fellowship Selection Committee for Physics (panel of 3)  
**2002** Chair, NASA Committee to Review the Case for Coherent Detectors on the Planck-Surveyor Spacecraft  
**2002-2005** Sectional Committee 5, Royal Society of London, selects FRS in Astronomy and Geophysics  
**2002** Principal Investigator on the Canadian Planck High Frequency Instrument, Canada Space Agency  
**2002-current** NASA US Planck Data Analysis Review Committee; Chair 2003  
**2001** UBC Physics Department Evaluation Committee  
**1999-00, 2000-01** CAP-CRM Prize Committee  
**1996-97, 2000-02** Steering Committee, NSERC Reallocation  
**1998-** Harvard Astronomy Department Advisory Board  
**1997-2003** CERN Theory Advisory Board  
**1995** NASA Midex Review Panel Member, August 1995, Washington (we chose (W)MAP)  
**1990-** CIFAR Cosmology and Gravitation Program Executive Committee  
**1995** Co-ordinator of the Workshop on Background Radiations and Galaxy Formation, Feb.-June 1995, Institute for Theoretical Physics, (UC Santa Barbara)  
**1994** Odin Scientist Selection Committee, Canadian Space Agency  
**1992-1995** Scientific Advisory Committee, IUCAA, Pune, India  
**1991-1997** Organizing Committee for IAU Commission 47 (Cosmology)  
**1991** The NRC/NSERC Astronomy Planning and Priorities Committee: The Next Two Decades

### **Internal Board Memberships: U. of Toronto**

**1986-** 21 Faculty Search Committees  
**2007** University Professor Committee, Chair Provost  
**2006** Physics Graduate Student Admissions  
**2006** Senior Awards Committee, Chair VP Research  
**2006** Royal Canadian Institute MARS Anniversary Dinner Host  
**2004-** SciNet High Performance Computing Committee  
**2005** Advisory Committee on University Professor Nominations, Faculty of Arts and Science, Chair FAS Dean  
**2005** School of Graduate Studies Vice Dean Search Advisory Committee, Chair SGS Dean  
**2004** School of Graduate Studies Dean Search Committee, Chair Provost

**2004** School of Graduate Studies Review Committee, Chair Provost  
**2001-2002** Provost Search Committee, Chair President  
**2001-2002** Task Force on Internationalization and Strategic International Partnerships Chair,  
VP Research, Dean of Arts & Science  
**2000-** Promotions Committee, Physics Department, UofT  
**1998-2000** Planning Committee, Physics Department, UofT  
**1999-** Natural Science and Engineering Panel of the Research Advisory Board, Chair VP  
Research  
**1990-91, 1994-95, 1996-present** Ex-officio Member, CITA Council  
**1994-1995** CITA SGS 5 year Review Committee  
**1994-1996** Task Force on Mathematical Sciences, University of Toronto  
**1992-1995** Research Advisory Board, University of Toronto  
**1992** Committee to Review the Office of the Vice-President, Research and International Re-  
lations  
**1986-1993** Chair, Postdoctoral Evaluation Committee, CITA  
**1987-1993** Graduate Student Admissions Committee, Physics Department  
**1986-1993** Physics Colloquium Committee, Physics Department  
**1990-1994, 1997-present** Welsh Lecture Committee, Physics Department  
**1992-1993** Chair, Computing Committee, CITA  
**1989-1990** CITA SGS 5 year Review Committee