CURRICULUM VITAE

VALERIO FARAONI

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QUALIFICATIONS

University professor with a strong research background in theoretical physics and proven excellence in teaching. Specializing in cosmology and gravitation. Active in administration.

Citizenship: Canadian, Italian.
Languages: English, Italian — fluent, French — beginner level.

EDUCATION

- **PhD Astrophysics,** SISSA — International School for Advanced Studies, Trieste 1991. Dissertation *Studies on Gravitational Waves,* supervisor Prof. George F.R. Ellis.
- **MSc Astrophysics,** SISSA—International School for Advanced Studies, Trieste 1989. Thesis *Gravitational Lensing,* supervisor Prof. George F.R. Ellis.
- **BSc Honours in Physics (*Laurea Magistralis cum laude*)**, U. Pavia 1987. Thesis *Newton-Cartan Formalism and its Application to the Newtonian Limit of General Relativity*, supervisor Prof. Bruno Bertotti.

ACADEMIC HISTORY

- **Professor**
  Bishop's University, Canada 2011-present (with tenure since 2007).
- **Associate Professor**
  Bishop's University, Canada 2006-2011.
- **Assistant Professor**
  Bishop's University, Canada 2004-2006.
- **Adjunct Professor**
  University of Northern British Columbia, Canada 2003-2006.
  Instructor 2001-2004.
- **Sessional Lecturer**
  University of Victoria, Canada summer 2003.
- **Scientific Associate**
  National Institute of Nuclear Physics of Italy (INFN), Frascati headquarters 1999-2000.
- **Postdoctoral Fellow**
  - Université Libre de Bruxelles, Research Group in General Relativity, Belgium: Chercheur Libre 1998-2000.
  - Inter-University Centre for Astronomy and Astrophysics, Pune, India: 1997-1998.
  - University of Victoria, Canada: 1992-1997.

AWARDS, DISTINCTIONS, AND SCHOLARSHIPS

- ***Bishop's University Research and Creativity Award*** 2014.
- ***UNBC Excellence in Teaching Award***, University of Northern British Columbia 2004.
- **National scientific habilitation as Full Professor** in "Theoretical Physics of the Fundamental Interactions" in the Italian university system. January 2014.
- ***Distinguished Referee*** recognition by the *European Physical Journal* (2013).
- ***Bishop's University Merit Awards*** 2011, 2007.
- ***1-course teaching release per year*** awarded as coordinator of the STAR research cluster, Bishop's University 2010-2017.
- ***NATO Advanced Science Fellowships for Physics***, Rome, Italy, 2001 and 1996.
- ***ULB Subside à Savant***, Université Libre de Bruxelles, Belgium: 11/1998-11/2000.
- ***"Essays on Gravitation" Honorable Mentions, Gravity Research Foundation***, United States: 1995-1997, 2003.
- ***Angelo della Riccia Foundation Research Fellowship***, Italy: 03/1992-12/1992.
- ***SISSA-ISAS Graduate Fellowships***, Trieste, Italy: 10/1987-12/1991.
- ***Almo Collegio Borromeo Annual Scholarships***, U. Pavia, Italy: 11/1982-11/1986.

PROFESSIONAL AFFILIATIONS

- **Perimeter Institute for Theoretical Physics** Long Distance Affiliate (2012-2018).
- **Canadian Association of Physicists** (2005-present):
  - Division of Theoretical Physics
  - Division of Physics Education
  - Committee to Encourage Women in Physics
  - Canadian Geophysical Union.
- **Italian Society of General Relativity and Gravitation** (SIGRAV), lifetime member.
- **Canadian Mathematical Society** (2015-present).
- **Canadian Mountain Network** (2016-present).

RESEARCH

- **Research Interests**
  - **Cosmology**: dark energy, modified gravity, early universe, inflation.
  - **Gravitation**: general relativity and alternative gravity theories, black holes.
  - **Glaciology:** mathematical modelling of alpine glaciers and ice sheets (side interest).

- **Publications** — see Publication List
  - **5 books and 136 refereed journal publications**, of which 105 articles and 4 books as single or first author.
  - **9455 citations, Hirsch index $\mathrm{h} = 42$, i-ten index $\mathrm{i}_{10} = 106$**
    (Google Scholar, see also INSPIRE service at `http://inspirehep.net/`).
  - The article T.P. Sotiriou & V. Faraoni 2010, *Rev. Mod. Phys.* 82, 451 was the most cited paper in the gr-qc electronic preprint archive in 2009-2013 and was the second most cited in gr-qc in 2014-2015. In 2016 it was reported as the second most cited paper of all times in gr-qc (`http://inspirehep.net/info/hep/stats/topcites/index`). It now counts more than 2250 citations in Google Scholar.

FUNDING

- **Funding summary:**
  personal grants CND 584,438
  grants as co-investigator and for conference organization: CND 260,240
  awards and fellowships: CND 181,240

- ***NSERC Discovery Grants (Individual)***, Natural Sciences & Engineering Research Council, Canada:
  - 2016-2021, "Challenging Einstein gravity at all scales", CND 250,000
  - 2011-2016, "Beyond Einstein: alternative theories of gravity and cosmology and a meta-theory of gravitational theories", CND 195,000
  - 2006-2011, "Dark energy, modified gravity, and cosmology in alternative gravity", CND 66,490
  - 2004-2006, "Quintessence and inflation in scalar-tensor gravity", CND 23,300.

- ***Bishop's University Research Grants***, Canada (Principal Investigator):
  - 2018, STAR cluster grant for HQP salary top-up, CND 1,125
  - 2014, special STAR cluster grant for postdoc salary top-up, CND 2,500
  - 2014, "Exotic black holes", CND 4,500

  - 2013, "Spherical and rotating black holes in cosmological backgrounds", CND 4,500
  - 2012, "Appearing and disappearing black hole horizons", CND 4,500
  - 2011, "Investigating the bizarre phenomenology of time-varying black holes and naked singularities in various theories of gravity", CND 4,500
  - 2010, "Beyond Einstein gravity: a book", CND 2,000
  - 2009, "Non-Einsteinian cosmology, gravitational waves, and a meta-theory of gravitational theories", CND 2,500
  - 2008, "Matter-gravity coupling in non-Einsteinian gravity, an international research network, and the organization of a workshop", CND 3,260
  - 2007, "Modified gravity and its cosmological applications", CND 6,100
  - 2005, "Modified gravity as an alternative to dark energy", CND 6,400.

- ***Bishop's University Dean's fund for conference presentations***, Canada 2006-2018: CND 20,200.
- Raised funds from various institutions for the conferences:
  - Theory Canada 8, Bishop's U. May 2013 – CND 12,340
  - Theory Canada 7, U. Lethbridge June 2012 – CND 7,900.
- ***Bishop's University Research Grants to the STAR research cluster*** which I coordinated 2010-2016: CND 35,000.
- ***Bishop's University Research Grants to the MUSCLE research cluster*** which I co-coordinated 2010-2011: CND 10,000.
- ***Commission of the European Communities DG12 grant***, Belgium 01/09/2000-31/08/2002. Project: "Chaos, irreversibility, and non-minimal coupling in cosmology". Co-investigator. PIs were E. Gunzig, I. Prigogine (Nobel Prize 1977), and L. Brenig. Amount € 130,000.
- **Miscellaneous funding:**
  - ***Special funding*** from the Associate VP Research, Bishop's University, Canada 2012. Amount CND 2000.
  - ***Bishop's University Speakers Committee grants*** 2011 and 2009. Amounts CND 345 and CND 250.
  - ***U. Cape Town visit and conference sponsorship***: *Beyond the Concordance Model* conference in Stellenbosch, South Africa, 23-27 August 2010, and 4-day visit to U. Cape Town. Estimated amount CND 2,600.
  - ***Entropy Journal:*** open access fee waiver for invited article, May 2010. Amount CFH 1,000 (CND 968).
  - ***International Work Study Program for Foreign Students*** (supervisor), Québec government: June-July 2008. Project: "A theoretical physics problem and exploring funding opportunities for research collaborations between Bishop's University and South-American universities". Principal Investigator. Amount CND 2,100.
  - ***INFN Frascati, Italy***, sponsorship for two collaborative visits: 2000. CND 1,000.
  - ***Seoul National University visit & conference sponsorship***, S. Korea: February 1996. Amount USD 3,000.

INVITED SEMINARS AND COLLOQUIA (75+)

- **Research and Education Center for Natural Sciences, Keio University**, Tokyo, Japan: *Cosmological applications of the quasilocal energy.* March 7, 2018.
- **Institute of Theoretical Astrophysics, University of Oslo**, Norway: *Structure formation and turnaround radius in cosmology with quasilocal energy.* July 21, 2016.
- **Ludwig-Maximilians Universität**, Munich, Germany: *Structure formation and turnaround radius in cosmology with quasilocal energy.* July 12, 2016.
- **Virtual Institute of Astroparticle Physics**, Paris, France: *Common misconceptions about LIGO detectors of gravitational waves.* April 29, 2016 (via videoconference).
- **Institute of Cosmology & Gravitation, U. Portsmouth**, UK: *Two cosmological applications of the Hawking quasilocal mass.* November 26, 2015.
- **University of Nottingham**, UK: *Two cosmological applications of the Hawking quasilocal mass.* November 18, 2015.
- **DAMTP, Cambridge University**, UK: *Cosmological applications of the Hawking quasilocal mass.* November 13, 2015.
- **University of Geneva**, Switzerland: *Newtonian simulations of large-scale structures vs general relativity.* July 10, 2015.
- **National Technical University of Athens**, Greece: *Newtonian simulations of large-scale structures vs general relativity.* June 17, 2015.
- **Perimeter Institute**, Waterloo, Canada: *Wild and tame scalar-tensor black holes.* June 10, 2014
- **Albert Einstein Institute/Max Planck Institute for Gravitational Physics**, Golm, Germany: *Recent developments, successes, and challenges in $f(R)$ gravity.* December 11, 2008.
- **Collège de France**, Paris, France: *Can we detect gravitational waves using their effects as lenses?* November 12, 1997.
- **CENTRA Centro Multidisciplinar de Astrofísica**, U. Lisbon, Portugal: *Scalar-tensor black holes, cosmological and isolated.* October 24, 2013.
- **McGill University**, Canada:
  - *Quasilocal energy and its cosmological applications.* December 6, 2016.
  - *Wild and tame scalar-tensor black holes.* March 21, 2014.
  - *$f(R)$ gravity: successes and challenges.* June 19, 2008.

- **Concordia University**, Canada: *Modifying gravity to explain the cosmic acceleration.* January 24, 2014.
- **Bishop's University**, Canada:
  - *Dynamical black holes, apparent horizons, and their problems.* October 13, 2017.
  - *Common misconceptions about LIGO detectors of gravitational waves.* April 25, 2016.
  - *Thickness of glaciers and potato radius of asteroids: first principles and materials physics.* March 18, 2016.
  - *How first-year physics solves an advanced relativity problem.* January 17, 2013.
  - *Why does the universe accelerate?* November 11, 2011.
  - *Dark matter in galaxies.* November 26, 2010. Seminar given as part of *Dark Matter Awareness Week 2010*, an initiative involving a nearly simultaneous seminar in 160 institutes around the world. organized by leading researchers
  - *Thermodynamics of spacetime.* September 24, 2010.
  - *Phantom energy and the Big Rip of the universe.* November 27, 2009.
  - *From classical and quantum particles to groundwater flow: using geometry to remove forces and sources from the dynamics.* November 13, 2009.
  - *Early universe inflation with non-minimal coupling.* November 6, 2009.
  - *Quantum Cosmology: a tale of cosmic origins.* October 9, 2009.
  - *Why is the universe accelerating? The modified gravity paradigm.* March 20, 2009.
  - *The Pirelli Relativity Challenge.* January 16, 2009.
  - *Theoretical cosmology Bishop's 2008.* February 15, 2008.
  - *Time travel in general relativity.* November 3, 2006.
  - *Conformal transformations and the limit of Brans-Dicke theory to Einstein's relativity.* March 10, 2006.
  - *General relativity in the universe — Einstein's legacy 100 years later, Part II*, February 2, 2006.
  - *General relativity in the universe — Einstein's legacy 100 years later, Part I*, January 26, 2006.
  - *Dark energy and the accelerated universe.* March 11, 2005.
  - *Will the universe end in a Big Rip?* June 28, 2004.
  - Given several informal lectures for the Bishop's Cosmology Group (summers 2010, 2006-2007).
- **University of Victoria**, Canada:
  - *Quintessence, super-acceleration, and the Big Smash of the universe.* June 2003.
  - *Gravitational waves as lenses.* February 8, 1999.
- **University of Northern British Columbia**, Canada:
  - *Dark energy, wormholes, and the accelerated universe.* June 8, 2005.
  - *Quintessence, super-acceleration, and the Big Rip of the Universe.* January 2004.
  - *Is general relativity a limit of Brans-Dicke gravity?* January 2004.
  - *Will the Universe end in a Big Rip?* October 2003.
  - *A new view of cosmological inflation.* February 5, 2001.

- **University of Prince Edward Island**, Canada: *A new view of cosmological inflation.* April 20, 2001.
- **Canterbury University**, New Zealand: *Generalizing cosmological inflation.* December 4, 2000.
- **IUCAA—Inter-University Centre for Astronomy and Astrophysics**, India:
  - *Lensing by gravitational waves.* September 3, 1998.
  - *When Brans-Dicke gravity does not reduce to Einstein's theory.* July 1998.
  - *Light meets gravity waves.* December 11, 1997.
- **SISSA-ISAS International School for Advanced Studies**, Trieste, Italy:
  - *Quasilocal energy made practical.* June 29, 2017.
  - *A bestiary of cosmological black holes and their evolving horizons.* October 11, 2013.
  - *Cosmological wormholes.* May 8, 2012.
  - *Cosmological apparent and trapping horizons.* July 19, 2011.
  - *Cosmological expansion and local dynamics.* June 25, 2009.
  - *$f(R)$ gravity: successes and challenges.* July 8, 2008.
  - *Stability issues in generalized gravity.* July 4, 2006.
  - *Extended quintessence, super-acceleration, and the Big Rip singularity.* June 2004.
  - *Generalizing inflation.* February 2000.
- **University of Bologna**, Italy: *Dark energy and the Big Rip of the universe.* June 23, 2004.
- **Polytechnic of Turin**, Italy: *$f(R)$ gravity: successes and challenges.* October 30, 2008.
- **University of Naples "Federico II"**, Italy: *Recent developments, successes, and challenges in $f(R)$ gravity.* November 7, 2008.
- **University of Trento**, Italy:
  - *Three cosmological applications of the quasilocal energy.* June 22, 2017.
  - *Wild and tame scalar-tensor black holes.* March 7, 2014.
  - *Cosmological wormholes.* July 27, 2012.
  - *News and views on $f(R)$ gravity.* November 13, 2008.
  - *The accelerating universe and the Big Rip.* May 21, 2004.
- **University of Pavia**, Italy: *Quintessence and the Big Rip of the Universe.* May 6, 2004.
- **University of Padua**, Italy: *Inflation with a twist.* October 27, 2000.
- **INFN—Italian Institute of Nuclear Physics**, Frascati, Italy:
  - *$f(R)$ gravity: successes and challenges.* October 16, 2008.
  - *The universe as a dynamical system.* October 20, 2000.

- *Generalized inflation.* January 24, 2000.
- *Illusions of general relativity in Brans-Dicke gravity.* June 21, 1999.
- *Tails of radiation and their observability in the interferometric detection of gravitational waves.* July 1994.

- **University of Udine**, Italy:
  - *Quintessence, the super-accelerated universe, and the Big Rip.* June 16, 2004.
  - *Gravitational waves: a new kind of gravitational lenses.* April 28, 1998.

OTHER PRESENTATIONS

- *The STAR Research Cluster*, Senate Research Committee, Bishop's University. November 29, 2016.
- *The Library as a meeting space for peer learning and research*, Teaching & Learning Centre, Bishop's University. October 24, 2016.
- *Welcome address* for the opening of the conference "Theory Canada 8", Sherbrooke. May 24, 2013.
- *Welcome address* for the opening of the conference "Theory Canada 7", Lethbridge. June 8, 2012.
- *Cosmology at Bishop's University.* "Northeast Cosmology Workshop", Montréal. Sept. 30, 2011.
- *The Theoretical Cosmology & Gravity Research Network.* "Beyond the Concordance Model" workshop, Stellenbosch, South Africa, August 27, 2010.
- *The Cosmology & Astrophysics Research Cluster.* Bishop's University Research Week, March 23, 2010.
- *Rock climbing*, guest lecture in ESG 264 (Outdoors Recreation) field trip, for Prof. D. Bardati, Bishop's University. May 7, 2008 and May 8, 2007.
- *Il Veneto* (in Italian), Dept. of Modern Languages, Bishop's University. April 3, 2006.

CONFERENCES AND WORKSHOPS (80)

1. **Northeast Cosmology Workshop**, Montréal, Canada. Invited talk: "Using the quasilocal energy in cosmology". March 16-18, 2018.
2. **9th Aegean Summer School**—Einstein's theory of gravity and its modifications: from theory to observations, Sifnos Island, Greece. Invited review talk: "Dynamical black holes in an expanding universe". Chaired plenary session. September 18-23, 2017.
3. **Alpine Cosmology Workshop 2017**, Allgäu Alps, Germany. Contributed plenary talk "Lensing by the cosmological constant and beyond". July 24-28, 2017.

4. **European Physical Society Conference on High Energy Physics**, Venice, Italy. Contributed (parallel) talk: "The turnaround radius as a probe of dark energy and modified gravity". July 5-12, 2017.

5. **CAP 2017** Canadian Association of Physicists annual congress, Kingston. Invited (parallel) talk: "Foliation dependence of black hole apparent horizons in spherical symmetry" and contributed (parallel) talk: "Black holes and wormholes subject to conformal mappings". May 29-June 2, 2017.

6. **Theory Canada 12**, Toronto. Contributed (plenary) talk: "Lensing by the cosmological constant and beyond". May 26-27, 2017.

7. **NESTVAL 2016** — New England/St. Lawrence Valley Geographical Society Annual Meeting, Sherbrooke, Canada. Contributed (parallel) talk: "Volume-area scaling of glaciers and ice caps and their longitudinal profiles". October 14-15, 2016.

8. **DSU 2016 — The Dark Side of the Universe 2016**, Bergen, Norway. Contributed (plenary) talk: "Turnaround radius in an accelerated universe in Einstein and in modified gravity". Chaired plenary session. July 25-29, 2016.

9. **Alpine Cosmology Workshop 2016**, Dolomites, Italy. Plenary talks: "Cosmological expansion versus local physics" and "Thickness of glaciers and potato radius of asteroids". July 3-8, 2016.

10. **CAP 2016** Canadian Association of Physicists annual congress, Ottawa. Contributed (parallel) talk: "Turnaround radius in an accelerated universe for Einstein and for modified gravity", poster: "Paczynski-Wiita-like potential for any static spherical black hole in metric theories of gravity", and report to DTP on 2016 DTP/WITP thesis prize. June 13-17, 2016.

11. **Theory Canada 11**, Ottawa. Contributed (plenary) talk: "Quasilocal energy in modified gravity". June 10-11, 2016.

12. **Connecting Through Climate Change**, MUSCLE Research Conference 2016. Sherbrooke, Canada. Contributed (plenary) talk: "Modelling thickness, volume, and ice loss in glaciers". February 19, 2016.

13. **Einstein's Legacy, Celebrating 100 Years of General Relativity**, London, UK November 28-29, 2015.

14. **Alpine Cosmology Workshop 2015**, Silvretta, Austria. Plenary talk: "Interacting dark energy and dark matter: a coordinate-independent description". July 20-24, 2015.

15. **Cosmology and the Quantum Vacuum 2015**, Rodos, Greece. Invited plenary talk: "General relativity vs Newtonian simulations of large-scale structures". Chaired plenary session. June 19-25, 2015.

16. **Atlantic General Relativity Meeting 2015**, Fredericton, Canada. Contributed (plenary) talk: "In search of a covariant description of interacting dark energy and dark matter". Chaired plenary session. May 6-7, 2015.

17. **Alpine Cosmology Workshop 2014**, Gschnitztal, Austria. Plenary talk: "How well do Newtonian simulations of structure formation include relativistic effects?" July 21-26, 2014.

18. **New Ideas in Low-Energy Tests of Fundamental Physics**, Perimeter Institute, Waterloo, Canada. Invited (plenary) talk: "$f(R)$ gravity and cosmology". June 16-19, 2014.

19. **Theory Canada 9**, Waterloo, Ontario. Contributed (plenary) talk: "Horizon thermodynamics and spacetime mappings". June 12-14, 2014. Chaired plenary session "Strings & Quantum Gravity".

20. **15th Canadian Conference on General Relativity and Relativistic Astrophysics**, Winnipeg. Contributed (parallel) talk: "Are quantization rules for horizon areas universal?" Chaired parallel session. May 21-23, 2014.

21. **DSU 2013 – The Dark Side of the Universe 2013**, Trieste, Italy. October 14-17, 2013.

22. **ERE 2013 – Encuentros Relativistas Españoles**, Benasque, Spain. Contributed (parallel) talk: "Black holes in scalar-tensor gravity". September 8-13, 2013.

23. **GR20/Amaldi 10 - Twentieth International Conference on General Relativity and Gravitation / Tenth Amaldi Conference on Gravitational Waves**, Warsaw, Poland. Contributed (parallel) talks: "Black holes in scalar-tensor gravity" and "The conformal cousin of the Husain-Martinez-Nuñez spacetime". July 7-13, 2013.

24. **Alpine Cosmology Workshop 2013**, Karwendel, Austria. Plenary talk: "$f(R)$ cosmology and gravity". June 24-28, 2013.

25. **CAP 2013** Canadian Association of Physicists annual congress, Montréal. Poster presented: "Campanelli-Lousto and veiled spacetimes". May 27-31, 2013.

26. **Theory Canada 8**, Sherbrooke. Poster presented: "Dynamical apparent horizons in inhomogeneous Brans-Dicke universes". May 23-26, 2013.

27. **Black Holes IX, Theory and Mathematical Aspects**, Saskatoon, Canada. Contributed (plenary) talk: "Black holes in scalar-tensor gravity". May 12-16, 2013.

28. **Atlantic General Relativity Meeting 2013**, Fredericton, Canada. Contributed (plenary) talk: "The conformal cousin of the Husain-Martinez-Nuñez spacetime". 2013.

29. **Telescopes of the Future and Astrophysics of Today**, Montréal, Canada. April 18, 2013.

30. **Searching for cosmic strings in new observational windows**, Montréal, Canada. October 26-28, 2012.

31. **13th Marcel Grossman Meeting**, Stockholm, Sweden. Invited (parallel) talk: "Black holes in scalar-tensor and $f(R)$ gravity" and contributed (parallel) talk "Apparent horizons for black holes embedded in cosmological backgrounds". July 1-7, 2012.

32. **CAP 2012** Canadian Association of Physicists annual congress, Calgary. Poster presented: "Cosmological apparent and trapping horizons". June 11-15, 2012.

33. **Theory Canada 7**, Lethbridge, Alberta. Poster presented: "The endpoint of black hole collapse in scalar-tensor gravity". June 7-9, 2012.

34. **IV International Meeting on Gravitation and Cosmology**, Guadalajara, Mexico. Invited plenary talk: "Nine years of $f(R)$ gravity and cosmology". May 21-25, 2012.

35. **Northeast Cosmology Workshop**, Montréal, Canada. Invited (plenary) talk: "$f(R)$ cosmology and gravity". September 30-October 2, 2011.

36. **Cosmo 11**, 11th International Conference on Particle Physics and Cosmology, Porto, Portugal. Contributed (parallel) talk: "Modified gravity with an extra force: Lagrangian description and stability". August 22-26, 2011.

37. **CAP 2011** Canadian Association of Physicists annual congress, St. John's, Newfoundland. June 14-17, 2011.

38. **Theory Canada 6**, Corner Brook, Newfoundland. June 10-12, 2011.

39. **Black Holes VIII, Theory and Mathematical Aspects**, Niagara Falls, Canada. Contributed (plenary) talk: "Scalar-tensor/$f(R)$ black holes and the thermodynamics of spacetime". May 10-14, 2011.

40. **20th Midwest Relativity Meeting**, Guelph, Canada. Contributed (plenary) talk: "Black holes in scalar-tensor/$f(R)$ gravity and the thermodynamics of spacetime". November 5-6, 2010.

41. **Beyond the Concordance Model**, Stellenbosch, South Africa. Invited (plenary) talk: "Beyond Birkhoff in scalar-tensor and $f(R)$ gravity". August 23-27, 2010.

42. **CAP 2010** Canadian Association of Physicists annual congress, Toronto. Contributed (parallel) talk: "The Jebsen-Birkhoff theorem in non-Einsteinian gravity". June 7-11, 2010.

43. **Cosmology, Quantum Vacuum and Zeta Functions**, Barcelona, Spain. Invited (plenary) talk: *Clifton's spherical solution in $f(R)$ vacuo harbours a naked singularity.* March 8-10, 2010.

44. **MUSCLE 2009** 1st Bishop's University Workshop on Multi-Scale Climate and Environmental Change, Sherbrooke, Canada. Contributed (plenary) talk: *Simplifying models of groundwater in aquifers with sources and/or anisotropy.* November 14, 2009.

45. **125h Marcel Grossman Meeting**, Paris, France. Invited (parallel) talk: *Is $f(R)$ gravity viable? The Cauchy problem of metric and Palatini $f(R)$ theories.* July 12-18, 2009.

46. **CAP 2009** Canadian Association of Physicists annual congress, Moncton. June 7-10, 2009.

47. **Theory Canada 5**, Fredericton, New Brunswick. Invited (plenary) talk: *The Cauchy problem of metric and Palatini $f(R)$ gravity.* June 3-6, 2009.

48. **13th Canadian Conference on General Relativity and Relativistic Astrophysics**, Calgary. Contributed (plenary) talk: *The Cauchy problem of metric and Palatini $f(R)$ gravity.* May 15-18, 2009.

49. **Black Holes VII, Theory and Mathematical Aspects**, Banff, Canada. Contributed (plenary) talk: *Generalized McVittie solutions and the late-time attractor role of comoving black holes.* May 9-14, 2009.

50. **NOVICOSMO 2008**, Trieste, Italy. October 20-22, 2008.

51. **SIGRAV 2008**, bi-annual congress of the Italian Society of General Relativity and Gravitation, Cosenza, Italy. Contributed (plenary) talk: *$f(R)$ gravity: successes and challenges.* September 22-25, 2008.

52. **CAP 2008** Canadian Association of Physicists annual congress, Québec City. Contributed (parallel) talk: *Do black holes accreting phantom energy violate Cosmic Censorship?* June 8-11, 2008.

53. **Theory Canada 4**, Montréal. June 4-7, 2008.

54. **Time and Matter 2007**, Bled, Slovenia. August 26-31, 2007.

55. **CAP 2007** Canadian Association of Physicists annual congress, Saskatoon, Saskatchewan. Invited (parallel) talk: $f(R)$ *cosmology.* June 17-20, 2007.

56. **Theory Canada 3**, Edmonton, Alberta. Invited (plenary) talk: *Cosmological expansion and local systems.* June 13-16, 2007.

57. **12th Canadian Conference on General Relativity and Relativistic Astrophysics**, Fredericton, New Brunswick. Invited plenary talk: $f(R)$ *gravity and the accelerated universe.* May 17-19, 2007.

58. **Black Holes VI, Theory and Mathematical Aspects**, White Point, NS, Canada. Contributed (plenary) talk: *New solutions for black holes in a cosmological background.* May 12-16, 2007.

59. **Modern Cosmology, CMB, and LSS** Workshop, Benasque, Spain. Poster presented: *What is the fate of the accelerated universe?* August 1-18, 2006.

60. **2nd International Meeting on Gravitation and Cosmology**, Santa Clara, Cuba. Invited plenary talk: *Stability issues in generalized gravity.* May 29-June 1, 2006.

61. **CAP 2005**, Canadian Association of Physicists annual congress, Vancouver. June 5-8, 2005.

62. **Theory Canada 1**, Vancouver. Invited (plenary) talk: *Possible fates for the accelerated universe.* June 2-5, 2005.

63. **GR 17 - Seventeenth International Conference on General Relativity and Gravitation**, Dublin, Ireland. Contributed (parallel) talk—*Generic Big Rip in a universe with nonminimally coupled scalar field* and poster presented: *Why parallel propagating pp-waves superpose linearly? A physical explanation.* July 18-23, 2004.

64. **Dynamics and Thermodynamics of Black Holes and Naked Singularities**, Milan, Italy. May 13-15, 2004.

65. **Peyresq Physics IV**, Peyresq, France. Invited (plenary) talk: *Rethinking inflation.* June 2000.

66. **International School of Astrophysics, D. Chalonge**, Erice, Italy: *7th Course—Current Topics in Astrofundamental Physics.* December 5-16, 1999. Contributed paper: *Inflation and quintessence with nonminimal coupling.*

67. **Peyresq Physics III**, Peyresq, France. Invited (plenary) talk: *The whys and hows of nonminimally coupled scalar field cosmology.* June 29-July 3, 1999.

68. **Fundamental Interactions-from Symmetries to Black Holes**, Brussels, Belgium. March 25-27, 1999.

69. **The Pritzker Symposium and Workshop on the Status of Inflationary Cosmology**, Chicago. Poster presented: *Nonminimal coupling of the scalar field: good or bad for inflation?* January 29-February 3, 1999.

70. **WHEPP 5-Fifth Workshop on High Energy Physics Phenomenology**, Pune, India. Contributed (parallel) talks: *Lensing by gravitational waves* and *Nonminimal coupling of the scalar field: good or bad for inflation?* January 12-25, 1998.

71. **GR 15 – Fifteenth International Conference on General Relativity and Gravitation**, Pune, India. Contributed (parallel) talk: *Nonminimal coupling of the scalar field and inflation.* December 16-21, 1997.

72. **7th Canadian Conference on General Relativity and Relativistic Astrophysics**, Calgary. Contributed (plenary) talk: *Does the nonminimal coupling of the scalar field improve or destroy inflation?* 4-8 June 1997.

73. **Pacific Conference on Gravitation and Cosmology**, Seoul, Korea. Contributed (plenary) talk: *The creation of multiple images by a gravitational wave.* February 1-6, 1996.

74. **GR 14 – Fourteenth International Conference on General Relativity and Gravitation**, Florence, Italy. Contributed (parallel) talk: *COBE constraints on Kaluza-Klein cosmologies.* August 6-12, 1995.

75. **5th Canadian Conference on General Relativity and Relativistic Astrophysics**, Waterloo, Ontario. Posters presented: *A singularity-free cosmological model* and *The equivalence principle determines the coupling constant to the curvature for a scalar field.* May 13-15, 1993.

76. **VIRGO General Meeting**, Frascati, Italy. February 28-29, 1992.

77. **International Conference on Gravitational Lenses**, Hamburg, Germany. Poster presented: *Multiple imaging by gravitational waves.* September 9-13, 1991.

78. **Cosmology and Relativity—A Scientific Culture Bridge in the New Europe**, Trieste, Italy. Contributed (plenary) talk: *The tail problem in cosmology.* May 1991.

79. **Toulouse Workshop on Gravitational Lenses**, Toulouse, France. September 15-19, 1989.

80. **GR 12 – Twelfth International Conference on General Relativity and Gravitation**, Boulder, Colorado, USA. July 2-8, 1989.

Institutes visited

- Research and Education Center for Natural Sciences, Keio University, Tokyo, Japan (2018)
- University of Oslo, Norway, Institute of Theoretical Astrophysics (2016)
- Arnold Sommerfeld Centre for Theoretical Physics, Ludwig-Maximilians Universität, Munich, Germany (2016)
- Planetarium Südtirol, Gummer/San Valentino in Campo, Bolzano, Italy (2016)

- University of Ottawa, Canada, Physics Dept. (2016)
- Carleton University, Ottawa, Canada, Physics Dept. (2016)
- Cambridge University, UK, Dept. of Applied Mathematics & Theoretical Physics (2015)
- Oxford University, UK, Astrophysics Department (2015)
- Institute of Cosmology & Gravitation, University of Portsmouth, UK (2015)
- University of Nottingham, UK, Dept. of Mathematics (2015)
- University of Geneva, Switzerland, Dept. of Theoretical Physics (2015)
- National Technical University of Athens, Greece, Physics Department (2017, 2015)
- Perimeter Institute for Theoretical Physics, Waterloo, Canada (2014)
- Dept. of Physics & Astronomy, University of Waterloo, Canada.
- International School for Advanced Studies (SISSA-ISAS), Trieste, Italy, Astrophysics Sector (many times since 2000)
- McGill University, Montréal, Canada, Physics Dept. (several times since 2006)
- University of Trento, Italy, Physics Dept. (several times since 2004)
- INFN Laboratori Nazionali di Legnaro, Italy (2013)
- Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain (2013)
- CENTRA Multidisciplinary Centre for Astrophysics, University of Lisbon, Portugal (2013)
- Osservatorio Astronomico Gelodi del Monte Baldo, Novezza, Italy (2013)
- University of Lethbridge, Alberta, Canada, Physics Dept. (2012)
- Institut de Estudis de l'Espais de Catalunya (IEEC), Bellaterra, Barcelona, Spain (2010)
- Department of Mathematics & Applied Mathematics, University of Cape Town, South Africa (2010)
- Max-Planck Institute for Gravitational Physics (Albert Einstein Institute), Golm, Germany (2008)
- INFN Laboratori Nazionali di Frascati, Italy (2008, 2000, 1994, 1992)
- Polytechnic of Turin, Italy, Physics Dept. (2008)
- University of Naples "Federico II", Italy, Physics Dept. (2008)
- University of Bergamo at Dalmine, Italy (2008)
- Universidad Central de Las Villas, Santa Clara, Cuba, Physics Dept. (2006)
- University of Bologna, Italy, Physics Dept. (2004)

- University of Udine, Italy, Physics Dept. (2004, 2000)
- University of Pavia, Italy, Physics Dept. (2004)
- University of Victoria, Canada, Dept. of Physics & Astronomy (2004, 2003, 2001, 1999)
- University of Padua, Italy, Physics Dept. (2000)
- Observatoire de Haute-Provence, Grasse, France (1999)
- Tata Institute for Fundamental Research, Mumbai, India (1998)
- Giant Meterwave Radio Telescope (GMRT), Narengaon, India (1998)
- Collége de France, Paris, France (1997)
- Université Paris IV, France, Physics Dept. (1997)
- Université Libre de Bruxelles, Belgium, Physics Dept. (1998, 1997)
- Seoul National University, South Korea, Physics Dept. (1996)
- ICTP Abdus Salam International Centre for Theoretical Physics, Trieste, Italy (1992)

TEACHING

TEACHING EXPERIENCE

Taught 73 university courses plus segments of 3 others and 12 tutorials.

- **Bishop's University Physics Department, Mathematics Department, Environmental Science Program, Certificate Program in Climate Change**
  2005-present. Full-time teaching of undergraduate and graduate courses:

  Graduate level — Relativistic Astrophysics, Theoretical Topics, Graduate Seminar I and II, Energy & the Environment.
  Undergraduate level — Quantum Mechanics I, Quantum Mechanics II, Relativity Theory, Independent Studies II, Relativistic Astrophysics, Mathematical Methods of Physics, Theoretical Topics, Thermal and Fluid Physics, Waves and Optics, Waves and Optics Laboratory, Modern Physics I, Modern Physics II, Introduction to Mechanics, Environmental Physics.

- **University of Northern British Columbia Physics and Mathematics Departments**
  2001-2004. Full-time teaching of undergraduate physics and mathematics courses with excellent student evaluations received, including *Excellence in Teaching Award.* Taught 24 courses and associated tutorials: Quantum Mechanics I, Quantum Mechanics II, Selected Topics in Environmental Physics, Classical Electromagnetism I, Modern Physics I, Linear Differential Equations and Boundary Value Problems, Introduction to Physics I, Introductory Physics II, Waves and Electromagnetism, General Introduction to Physics, Physical Sciences.

- **University of Victoria, Department of Physics and Astronomy**
  Summer 2003 sessional instructor: Thermodynamics, Introduction to Quantum Mechanics. Early Universe segment of Topics in Astronomy (graduate course 1997).

- **International School for Advanced Studies**, Trieste, Italy: co-taught PhD course General Relativity with J.C. Miller.

- **Université Libre de Bruxelles**, Research Group in General Relativity: 1998-1999. Directed Studies in Relativity and Cosmology.

- **External thesis examiner/reader**:
  - Shohreh Rahmati, PhD (Dept. of Mathematics & Statistics, U. of New Brunswick, Canada 2017)
  - Nezihe Uzun, PhD (Dept. of Physics & Astronomy, U. Canterbury, New Zealand 2016)
  - Kaisa Henttunen, PhD (Dept. of Physics & Astronomy, Turku U., Finland 2015)
  - Dario Bettoni, PhD (Astroparticle Programme, SISSA Trieste, Italy 2013)
  - Markku Oksanen, PhD (Physics Dept., U. Helsinki, Finland 2013)

- Benjamin K. Tippett, PhD (Dept. of Mathematics & Statistics, U. of New Brunswick, Canada 2011)
- Anne Marie Nzioki, MSc (Dept. of Mathematics & Applied Mathematics, U. of Cape Town, South Africa 2009)
- Mohamed E.S. Abdelwahab, MSc (Dept. of Mathematics & Applied Mathematics, U. of Cape Town, South Africa 2008).

- **Internal thesis examiner**
  - Hugues Beauchesne, MSc (Physics Dept., Bishop's U. 2012)
  - Benjamin Constantineau, MSc (Physics Dept., Bishop's U. 2011)
  - Caroline Foster, MSc (Physics Dept., Bishop's U. 2007)
  - Abdelkarim Oukouiss, PhD (Physics Dept., Université Libre de Bruxelles 1999).
- **Examination Committee member:**
  - Elinore Roebber, PhD (McGill Space Institute, Canada 2017)
  - Hani Nurbiantoro Santosa, PhD (Astroparticle Programme, SISSA, Italy 2013)
  - Aurora Meroni, PhD (Astroparticle Programme, SISSA, Italy 2013)
  - Giulio D'Odorico, PhD (Astroparticle Programme, SISSA, Italy 2013)
  - Dario Cattelan, BSc Honours (Dept. of Physics & Astronomy, Bishop's U. 2018)
  - Matthew Lundy, BSc Honours (Dept. of Physics & Astronomy, Bishop's U. 2018)
  - Yann Audin, BSc Honours (Dept. of Physics & Astronomy, Bishop's U. 2017)
  - Philippe Laporte, BSc Honours (Physics Dept., Bishop's U. 2017)
  - Jonathan St. Antoine, BSc Honours (Physics Dept., Bishop's U. 2015)
  - Jonathan Drapeau-Lebeau, BSc Honours (Physics Dept., Bishop's U. 2015)
  - Emilie Parent, BSc Honours (Physics Dept., Bishop's U. 2015)
  - Neda Aminshariati, BSc Honours (Physics Dept., Bishop's U. 2009)
  - Emilie Pelchat, BSc Honours (Physics Dept., Bishop's U. 2009)
  - Deanna MacLennan, BSc Honours (Physics Dept., Bishop's U. 2007)
  - David Palcuwcuz, BSc Honours (Physics Dept., Bishop's U. 2007)
  - Jeremy Godin, BSc Honours (Physics Dept., Bishop's U. 2006)
  - Edward Wilson-Ewing, BSc Honours (Physics Dept., Bishop's U. 2005)
  - Florian Maisonneuve, BSc Honours (Physics Dept., Bishop's U. 2005).
- **Other pedagogical experience**
  - Pedagogical publications — see Teaching Statement.
  - On-line tutoring and project development for private client, results published.

SUPERVISION AND TRAINING

- **Postdoctoral Fellows:**
  - **Dr. Dilek Çiftci** Kazici, supervised August 2017-present. Project: "Modified gravity, axial symmetry, and discs around black holes". Dilek is an Associate Professor at Namık Kemal University, Turkey on a 1-year postdoctoral leave with funding from the Turkish Science and Technology Research Council TÜBİTAK.
  - **Dr. Angus Prain**, supervised November 2012-May 2015. Project: "Analogue models and cosmology". Present position: Marie Curie Postdoctoral Fellow, Heriot-Watt University, Edimburgh.
  - **Dr. Ivana Bochicchio** (Postdoctoral Fellow at Dept. of Mathematics, U. Salerno, Italy), supervision of two-month research project for Québec Bourses d'Excellence program 2010. Project: "Lemaître-Tolman-Bondi cosmologies". Present position: Research Associate, U. Salerno.
- **Graduate students and graduate-level research assistants:**
  - **Adriana M. Cardini**, MSc in progress Bishop's U. 2017-present: supervised.
  - **Shawn D. Belknap-Keet**, MSc in progress Bishop's U. 2017-present: supervised.
  - **Marianne Lapierre-Léonard**, MSc 2017: supervised. Thesis: "Cosmological applications of the Hawking-Hayward quasi-local Mass" Present position: maternity leave.
  - **Wen-Jan Chung**, Sept. 2015-March 2016: supervised. Project: "Cosmological black holes". Present position: PhD student, City University of New York.
  - **Andres F. Zambrano Moreno**, June-July 2015: supervised. Project: "Conformal black holes". Present position: MSc student in complex systems, U. Calgary.
  - **Andres F. Zambrano Moreno**, MSc 2014: supervised. Thesis: "Inhomogeneous dynamical spacetimes in General Relativity and Brans-Dicke gravity". Andres received a B.E.S.T. grant from the university for this project.
  - **Andres F. Zambrano Moreno**, Bishop's U., summer 2011: supervised. Project: "Investigating the bizarre phenomenology of time-varying black holes and naked singularities in various theories of gravity ".
  - **José Cleriston Campos de Souza**, U. São Paulo, PhD 2008: co-supervised 2006-2007. Thesis: "Análise Geométrica e Dinamica de Modelos de Gravidade Generalizada". Present position: unknown (was Postdoctoral Fellow at U. of ABC, Brazil).
  - **Nicolas Lanahan-Tremblay**, MSc 2008: supervised, Bishop's U. 2006-2008. Thesis: "The initial value formulation of metric and Palatini $f(R)$ gravities via first order hyperbolicity analysis of equivalent scalar-tensor theories". Present position: CEGEP substitute teacher, Montréal.

- **Abdelkarim Oukouiss**, Thèse Annexe de Doctorate: co-supervised (with Prof. E. Gunzig), Université Libre de Bruxelles, Faculté des Sciences 1999. Thesis: "Exact solutions of scalar-tensor cosmology". Present position: Professor, U. Mohammed I, Nador, Morocco.

- **Honours theses:**

  - **Shawn Belknap-Keet**, Bishop's U. 2016-2017: supervised. Thesis: "A new spherically symmetric dynamical family of solutions of scalar-tensor gravity". Present position: MSc student, Bishop's U.
  - **Marianne Lapierre-Léonard**, Bishop's U. 2014-2015: supervised. Thesis: "Newtonian large-scale structure simulations: do they fail to include relativistic effects?". Completed MSc in Physics. Present position: maternal leave. Marianne received the Chancellor's Prize and the University Prize in Physics for her work.
  - **Marshall W. Vokey**, Bishop's U. 2014-2015: supervised. Thesis: "Applications of the physics of glaciers". Completed an MSc in environmental science at U. Guelph.
  - **Charles S. Protheroe**, Bishop's U. 2011-2012: supervised. Thesis: "The qualitative dynamics of general scalar field cosmology". Now works as a corrosion engineer in the private sector in Vancouver (completed MSc in Biophysics, Concordia U.).
  - **Andres F. Zambrano Moreno**, Bishop's U. 2009-2010: supervised. Thesis: "The stability of non-gravitating scalar fields". Present position: MSc student in complex systems, U. Calgary.
  - **Audrey Jacques**, Bishop's U. 2006-2007: supervised. Thesis: "Cosmological expansion and local dynamics". Present position: Centre Hospitalier Universitaire de Sherbrooke (medical physics).
  - **Shahn Nadeau**, Bishop's U. 2005-2006: supervised. Thesis: "Conformal techniques in scalar-tensor theories of gravity". Present position: IT consultant, Sherbrooke.
  - **Michael N. Jensen**, Bishop's U. 2004-2005: supervised. Thesis: "Modeling the dynamical behavior of the universe". Completed a masters in aeronautical engineering, currently a PhD student in computational chemistry at U. Sherbrooke.
  - **Ellie D'Hondt**, Licentiaastsverhandeling: co-supervised (with Profs. D. Aerts and E. Gunzig), Vrije Universiteit Brussel, 1998-1999. Thesis: "From minimal to non-minimal coupling in inflationary cosmology". Completed a PhD, currently a researcher at Vrije Universiteit Brussel.

- **Undergraduate research projects** (at Bishop's University)**:**

  - **Jeremy Côté** supervised May 2018-present. Project: "Cosmological and astrophysical applications of the quasilocal energy" (USRA program).

- **Thomas Gobeil** supervised January-April 2018. Project: "No-hair in alternative gravity" (USRA program).
- **Jeremy Côté** supervised May-August 2017. Project: "TOV equation in cosmological settings and in alternative gravity" (USRA program).
- **Adriana M. Cardini** supervised January-April 2017. Project: "Cosmological backgrounds for stars in alternative gravity" (USRA program).
- **Thomas Gobeil** supervised May-August 2017. Project: "The TOV equation in alternative gravity".
- **Adriana M. Cardini** supervised fall 2016. Project: "Friedmann equation and formal analogies".
- **Shawn Belknap-Keet** supervised April-August 2016. Project: "Non-standard black hole accretion with pseudo-Newtonian potentials" (USRA program).
- **Adriana M. Cardini** supervised May-August 2016. Project: "Analytic solutions of the Einstein-Friedmann equations of cosmology and formal analogies".
- **Shawn Belknap-Keet** supervised fall 2015. Project: "Pseudo-Newtonian potentials for particle trajectories around black holes". Shawn received a prize at the Research Week 2016 poster competition for his presentation of this project's results.
- **Marianne Lapierre-Léonard** supervised April-August 2015. Project: "Quasilocal energies and their cosmological applications" (USRA program).
- **Shawn Belknap-Keet** supervised April-August 2015. Project: "Black hole accretion of dark energy" (USRA program).
- **Marianne Lapierre-Léonard** supervised April-August 2014. Project: "The relativistic tide formalism applied to cosmological structure formation" (USRA program).
- **Marianne Lapierre-Léonard** supervised May-August 2013. Project: "Generalized McVittie solutions in scalar-tensor gravity" (USRA program).
- **Charles S. Protheroe** supervised May-August 2012. Project: "Scalar field models of dark energy" (USRA program).
- **Charles S. Protheroe** supervised May-August 2011. Project: "Dynamical horizons" (USRA program).
- **Andres F. Zambrano Moreno** supervised November-December 2011. Project: "Typing a book on Special Relativity".
- **Charles S. Protheroe** supervised May-August 2010. Project: "Cosmic no-hair in non-Einsteinian gravity" (USRA program).
- **Andres F. Zambrano Moreno** supervised summer 2010. Project: "The gravitational Cheshire effect".

- **Emilie Pelchat** supervised May-August 2008. Project: "Cosmology in alternative gravity" (USRA program). Completed a MSc in quantum information at U. Sherbrooke, currently a CEGEP teacher at Champlain College, Sherbrooke.
- **Andres F. Zambrano Moreno** supervised June-July 2008 for Québec International Work-Study Program for Foreign Students. Project: "A theoretical physics problem and exploring funding opportunities for research collaborations between Bishop's University and South-American universities".
- **Audrey Jacques** supervised May-August 2007. Project: "Cosmological expansion and local systems" (USRA program).
- **Audrey Jacques** supervised May-August 2006. Project: "Models of the accelerated universe in alternative gravity" (USRA program).
- **Michael N. Jensen** supervised May-August 2005. Project: "Stability issues in scalar-tensor gravity".
- **Stephanie A. Theuerkauf** supervised May-August 2005. Project: "Topics in scalar-tensor cosmology" (USRA program). Completed a masters in mathematics at McMaster U., currently in the private industry.
- **Shahn Nadeau** supervised May-August 2005. Project: "Modified gravity as an alternative to dark energy".

- **Teaching Assistants supervised:** 11 at Bishop's U., UNBC, and U. Victoria.
- **Coordinated Cosmology Group** at Bishop's University 2010 (participants I. Bochicchio, B. Constantineau, C. Protheroe, S. Turcotte, B. Willms, A. Zambrano). Organized talks and led discussion sessions.
- **Coordinated Cosmology Group** at Bishop's University 2006-2007 (participants G. Craig, J.C.C. de Souza, P. Labelle, N. Lanahan-Tremblay).

SERVICE

SERVICE TO THE SCIENTIFIC COMMUNITY

- **Subject Editor** (Theoretical Physics) of *FACETS*, Canadian Science Publishing's new multidisciplinary open access science journal and the official journal of the Royal Society of Canada's Academy of Science (September 2015-present).
- **Chair**, Division of Theoretical Physics of the Canadian Association of Physicists (June 2011-June 2013).
- **Vice-Chair and Chair Elect**, Division of Theoretical Physics of the Canadian Association of Physicists (June 2009-June 2011).
- **Chair**, Selection Committee for the 2012 CAP-CRM Medal in Theoretical and Mathematical Physics (national research prize).
- **Co-organizer** of the Theoretical Cosmology and Gravity Research Network (T_{CG}NET) based in Cape Town (2007-2010).
- **Chair**, 2015 DTP/WITP Thesis Prize Committee (national PhD thesis prize in theoretical physics).
- **Member**, 2016 DTP/WITP Thesis Prize Committee.
- **Referee/reviewer for 42 journals, book project referee:**
  - **Regular referee** for *Physical Review Letters*, *Physical Review D*, *Classical and Quantum Gravity*, *Journal of Cosmology and Astroparticle Physics*, *General Relativity and Gravitation*, *European Physical Journal C*, *American Journal of Physics*.
  - **Occasional referee** for *Scientific Reports Nature*, *Proceedings of the Royal Society A*, *Annals of Physics*, *Monthly Notices of the Royal Astronomical Society*, *Physics of the Dark Universe*, *Physics Letters A*, *Physics Letters B*, *The Astrophysical Journal*, *Journal of High Energy Physics*, *Journal of Mathematical Physics*, *European Journal of Physics*, *Journal of Geometry and Physics*, *Journal of Geometry and Symmetry in Physics*, *Astronomy & Astrophysics*, *Modern Physics Letters A*, *International Journal of Modern Physics A*, *International Journal of Modern Physics D*, *International Journal of Theoretical Physics*, *Foundations of Physics*, *Annalen der Physik*, *Entropy*, *Physica Scripta*, *International Journal of Geometrical Methods in Modern Physics*, *Open Astronomy Journal*, *Canadian Journal of Physics*, *Central European Journal of Physics*, *Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)*, *Europhysics Letters*, *Nuovo Cimento B*, *Fizika B*, *ISRN Mathematical Physics*, *Applied Mathematics and Computation*, *Advances in Mathematical Physics*, *Advances in High Energy Physics*, *Indian Journal of Physics*, *Galaxies*, *Symmetry*, *Universe*, *Gravitation & Cosmology*.
  - Refereed 226 research articles and 4 conference proceedings to date. Nominated "Distinguished Referee" in 2013 by the *European Physical Journal*.

- **Reviewer** for *Mathematical Reviews* — published 89 short reviews of research articles.
- Referee of 4 book proposals for Springer (2016, 2015, 2015, 2011) and one textbook for J. Wiley & Sons (2005).
- 1 book review published in *Classical and Quantum Gravity* (2010).

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- **Chair, Section PHYS06 (Theoretical/Mathematical Physics)** of NSERC Evaluation Group 1505 for the adjudication of Discovery Grants, Canada (2017-2018).
- **Member, NSERC Evaluation Group 1505 (Physics)** for the adjudication of Discovery Grants, Canada (2016-2019).
- **Referee of research grant proposals** for:
  - Le Studium, Loire Valley Institute for Advanced Studies, France (2018)
  - Templeton Foundation, USA (2015)
  - MIUR, Ministry of Education, University & Research of Italy
    - Montalcini competitions for young researchers (2016-2018)
    - PRIN grant competition (2016)
  - NCN Narodowe Centrum Nauki/National Science Centre of Poland (2014)
  - GACR Czech Science Foundation (2014, 2013)
  - FONDECYT National Fund for Scientific & Technological Development of Chile (2015, 2013, 2010)
  - NSERC Natural Sciences & Engineering Research Council of Canada (2012, 2012, 2007)
  - SRNSF Shota Rustaveli National Science Foundation of Georgia (2012)
  - NRF National Research Foundation of South Africa (2017, 2016, 2012, 2008)
  - ETF Estonian Science Foundation (2012)
  - NWO Netherlands Organisation for Scientific Research (2012)
  - EEC European Community Directorate-General for Research (2006)
  - Research Council of Norway, Division of Science (2006)
  - INFN National Institute of Nuclear Physics of Italy (2002).
- **Conference organization:**
  - Member of the Scientific Organizing Committee, Alpine Cosmology Workshop, Val Vogna, Italy, July 16-20, 2018.
  - Member of the Scientific Organizing Committee, Alpine Cosmology Workshop, Allgaüer Alpen, Germany, July 24-28, 2017.
  - Member of the Scientific and Local Organizing Committees, Alpine Cosmology Workshop, Italy, July 3-8, 2016.
  - Member of the Scientific and Local Organizing Committees, Alpine Cosmology Workshop, Austria, July 20-24, 2015.

- Chaired plenary session "Dark energy and modified gravity" at DSU 2016 — The Dark Side of the Universe, Bergen, Norway July 25-29, 2016.
- Chaired plenary session at Cosmology and the Quantum Vacuum, Rodos, Greece, June 19-25, 2015.
- Chaired plenary session at Atlantic General Relativity Meeting, Fredericton, Canada 6-7 May, 2015.
- Chaired plenary session "Strings & Quantum Gravity" at Theory Canada 9, Waterloo, Canada June 12-14, 2014.
- Chaired parallel session at 15th Canadian Conference on General Relativity and Relativistic Astrophysics, Winnipeg, Canada May 21-23, 2014.
- Organized/co-organized 13 Division of Theoretical Physics sessions, 1 Business Meeting, plus 7 joint sessions with other divisions; judge of student oral competition. CAP 2013, annual congress of the Canadian Association of Physicists. Montréal, May 27-31, 2013.
- Member of the Organizing Committee of "Theory Canada 8", Sherbrooke, Québec, May 23-26, 2013.
- Chaired plenary session at Atlantic General Relativity Meeting, Fredericton, Canada, April 26-27, 2013.
- Organized/co-organized 10 Division of Theoretical Physics sessions, 1 Business Meeting, plus 6 joint sessions with other divisions for CAP 2012, annual congress of the Canadian Association of Physicists. Calgary, June 11-15, 2012.
- Member of the Organizing Committee of "Theory Canada 7", Lethbridge, Alberta, June 7-9, 2012. Co-editor of the proceedings (with M. Walton, A. Dasgupta, S. Das, special issue of *Can. J. Phys.*).
- Chaired plenary session at IV International Meeting on Gravitation and Cosmology, Guadalajara, Mexico, May 21-25, 2012.
- Co-organizer of 4 Division of Theoretical Physics sessions and 4 joint sessions at CAP 2011. St. John's, Newfoundland, June 13-17, 2011.
- Member of the Organizing Committee of joint "Atlantic General Relativity Meeting/Theory Canada 6", Corner Brook, Newfoundland, June 10-12, 2011.
- Member of the Scientific Organizing Committee and Chair of a plenary discussion session for the workshop "Beyond the Concordance Model", Stellenbosch, South Africa August 23-27, 2010.
- Chaired plenary session "Strings & Quantum Gravity" at Theory Canada 9, Waterloo, June 12-14, 2014.
- Chaired parallel session at 15th Canadian Conference on General Relativity and Relativistic Astrophysics, Winnipeg, May 21-23, 2014.
- Chaired parallel sessions "Relativity and Gravitation IV", "Cosmology", "DTP Poster Session", and "DTP Annual Business Meeting", and judge in student oral competition at CAP 2013, Montréal, May 27-31, 2013.
- Chaired plenary session at the Atlantic General Relativity Meeting 2013, Fredericton, Canada.
- Chaired parallel sessions "Mathematical Physics", "Relativity and Gravitation", "Cosmology", "DTP Best Student Poster Competition", "DTP Annual Business Meeting" and plenary session "2011 CAP-CRM Medal Lecture" at CAP 2012, Calgary June 11-15, 2012.
- Chair of plenary session at IV International Meeting on Gravitation and Cosmology, Guadalajara, Mexico, May 21-25, 2012.
- Chair of the parallel session "General Relativity and Cosmology" at CAP 2011.St. John's, Newfoundland, June 13-17, 2011.
- Chair of plenary session at 20th Midwest Relativity Meeting, Guelph, Canada November 5-6,2010.
- Chair of the parallel session "Division of Theoretical Physics oral student competition" at CAP 2010. Toronto June 7-11, 2010.

- Member of the Organizing Committee of "MUSCLE 2009, 1st Bishop's University Workshop on Multi-Scale Climate and Environmental Change". Sherbrooke. November 14, 2009.
- Organizer and Chair of the parallel session "Relativity" at CAP 2009. Moncton June 7-10, 2009.
- Chair of parallel session at the 13th Canadian Conference on General Relativity and Relativistic Astrophysics. Calgary May 15-18, 2009.
- Member of the Advisory Committee and Chair of plenary session, Santa Clara Workshop on Gravitation and Cosmology. Santa Clara, Cuba May 29-June 1, 2006.
- Collaborated with editing proceedings of Peyresq Physics IV Conference. Peyresq, France June 2000.
- Collaborated with the Local Organizing Committee of GR 15, the 15th International Conference on General Relativity and Gravitation. Pune, India 1987.

SERVICE TO INSTITUTIONS

- **Coordinator** of the "STellar Astrophysics & Relativity (STAR)" research cluster at Bishop's University (October 2009-July 2013, July 2014-July 2017). The research of this cluster was selected as one of the objectives of the Strategic Research Plan of the university in 2009 and given one of two new Tier II Canada Research Chair positions in 2015.
- **Co-coordinator** (with E. Levac) of the "Multi-Scale Climate and Environmental Change (MUSCLE)" research cluster at Bishop's University (October 2009 - July 2011). The research of this cluster was selected as one of the objectives of the Strategic Research Plan in 2009 and was given one of three new Tier II Canada Research Chair positions at the university.
- ***Interim* Chair** of Environmental Science Programme, Bishop's University (16 February 2009-30 June 2010). Duties included: chairing meetings of the Steering Committee, program development, class scheduling, preparation of official documents (*e.g.*, Academic Calendar), program website, academic advising, interaction with Dean's Office, Admission Office, and Recruitment Office.
- **External referee for the evaluation of colleagues**:
  - External Assessor for promotion to full professorship, University of New Brunswick, Canada (2017)
  - evaluation for promotion, Simon Fraser University, Canada (2014)
  - evaluated scientist rating applications for NRF National Research Foundation of South Africa (2016, 2016, 2011).
- **Representative of the Natural Sciences & Engineering Research Council** at Bishop's University (1 July 2009 - 31 December 2010). Activities included interaction with NSERC-Québec representatives, liasoning between researchers and NSERC, cooperation with Research Office, assisting with Research Week 2010 prizes and ceremonies (including visit of NSERC President Dr. Suzanne Fortier), outreach, financial reporting. There was a CND 5.000/year budget.
- **Service on university committees:**

  - Member, Research Space Committee (Bishop's U. 2017-current)
  - Teaching and Learning Centre, Sciences representative (Bishop's U. 2016-current)
  - Search Committee for Tier II Canada Research Chair in Astrophysics & Cosmology (Bishop's U. October 2015-March 2016)
  - Bookstore Advisory Committee (Bishop's U. 2016-current).
  - Descriptive Assessment Committee for Academic Review Process (Bishop's U. 2015)
  - Spring School *ad hoc* Committee (Bishop's U. September 2015-February 2016)
  - Continuing Education Committee (Bishop's U. January 2014-2017)
  - Sustainable Development Committee (Bishop's U. 2014-2015)
  - Steering Committee of Environmental Science Programme (Bishop's U. 2010-2016)
  - NSERC Graduate Scholarships Committee (Bishop's U. Fall 2014)
  - Selection of Postdoctoral Fellow (Bishop's U. 2012)
  - Search Committee for Dean of Arts and Science (Bishop's U. October 2010-January 2011)
  - Search Committee for Tier II Canada Research Chair in Climate and Environmental Change (Bishop's U. 2009-2010)
  - Academic Senate (Bishop's U. 2006-2008)
  - Senate Research Committee (Bishop's U. 2005-2008)
  - Senate Programme for Academic Review Committee (Bishop's U. 2009-2013)
  - Senate Nominating Committee (Bishop's U. 2007-2008)
  - Senate Teaching Evaluation Committee (Bishop's U. 2006-2009)
  - Committee designing new Environmental Science Programme (Bishop's U. 2007-2009)
  - Sub-committee on Electronic Preprints and Theses Repository (Bishop's U. 2008-2010)
  - Member of jury of MUSCLE Research Cluster student award (Bishop's U. 2014-2016)
  - Student poster competition jury at Bishop's U. Research Week (2006-2008)
  - Member, Selection Committee for MetroGaz Scholarship. Climate Change program, Bishop's U. (December 2016)
  - Working Group on Research and Creativity drafting the Strategic Research Plan (Bishop's U. 2006)
  - Physics Department Contract Faculty Appointments Committee (Bishop's U. 2005-present)
  - Graduate Microprogram in Climate Change Contract Faculty Appointments Committee (Bishop's U. 2016)
  - Physics Labs Committee (U. Northern British Columbia 2003)
  - IUCAA Faculty Forum (IUCAA, India 1997-1998)
  - IUCAA Graduate Student Screening Committee (IUCAA, India 1998).
- Organized 56 seminars plus several Journal Club meetings at Bishop's University, 1 seminar at UNBC, 1 at ULB.
- Given several *pro bono* courses and tutorials.

SERVICE TO THE COMMUNITY AND OUTREACH

- Science outreach:
  - Interview with New Scientist journalist Gilead Amit. 26 January 2017.
  - *Why Einstein must be wrong—in search of the theory of gravity*, Café Scientifique at Golden Lion Pub, Sherbrooke. 21 March 2016.
  - *Dark energy, dark gravity, and the accelerated universe* (with N. Lanahan-Tremblay), Research Week, Bishop's University. 31 March 2008.
  - Interview with New Scientist journalist Jessica Griggs. December 2008.
  - *Dark energy and the accelerated universe*, J. Abbott College, Montréal, Canada. 18 March 2005.
  - *Gravitational lensing*, High School Science Day, IUCAA, Pune, India. 26 February 1998.
  - TV Interview, Station Mumbai Doordarshan, Pune, India, 1998.
  - *Viaggio nell'universo (Voyage through the universe)*, slide show and lecture, Club Alpino Italiano, Caprino Veronese, Italy, 1989.
  - *Fenomeni ondosi in acustica ed elettronica (Wave phenomena in acoustics and electronics)* with practical demonstrations, Liceo Scientifico (high school), Garda, Italy. Spring 1987.
- Volunteer consulting on Italian scientist/industrialist Olinto De Pretto for science documentary Executive Producer Vanessa Dylyn, Matter of Fact Media Inc., Toronto (2010).
- Participated to programme pairing CEGEP de Sherbrooke students with university professors (Prof. Ann George, 2010).
- Organized (with Darren Millington) Arts & Science public lecture *The 100 Year Hunt for The Red Sprite* by Montréal artist Peter McLeish on November 18, 2009 at Bishop's University.
- Head Judge, Best Student Paper Competition of the Division of Theoretical Physics, and Judge of the final competition across all physics disciplines. CAP 2010 annual congress of the Canadian Association of Physicists (Toronto, June 7-11, 2010).

ADMINISTRATION MEETINGS

- **Evaluation Group 1505 for the adjudication of NSERC Discovery Grants**. Ottawa, February 12-15, 2018. Section Chair (Theoretical and Mathematical Physics).
- **Evaluation Group 1505 for the adjudication of NSERC Discovery Grants**. Ottawa, February 13-15, 2017.
- **Canadian Association of Physicists Program Committee Meeting** for CAP 2013 congress and **Fall Council Meeting**. Ottawa, October 19-20, 2012.

- **Canadian Association of Physicists Program Committee Meeting** for CAP 2012 congress and **Fall Council Meeting**. Ottawa, October 14-16, 2011.
- Various **Physics Department Chairs meetings** and CAP Council meetings at CAP annual congresses 2010-2017.
- **NSERC-Québec Representatives Annual Meeting**, Québec City. August 30, 2009.
- **OG21 Meeting**, Rome, Italy. Meeting of the OG21 Italian research collaboration on gravitational wave theory. January 2000.

APPENDIX: PUBLICATIONS

Books (5, refereed)

B1) V. Faraoni 2015, *Cosmological and Black Hole Apparent Horizons*, Lecture Notes in Physics Series vol. 907 (Springer, New York). 199 pages, 13 illustrations. ISBN 978-3-319-19239-0. E-book version ISBN 978-3-319-19240-6.

B2) V. Faraoni 2013, *Special Relativity*, Undergraduate Lecture Notes in Physics series (Springer, New York). 304 pages, 51 illustrations, ISBN-978-3-319-01106-6. E-book version ISBN 978-3-319-01107-3.

B3) S. Capozziello & V. Faraoni 2010, *Beyond Einstein Gravity: A Survey of Gravitational Theories for Cosmology and Astrophysics*, Fundamental Theories of Physics vol. 170 (Springer, New York). 430 pages, ISBN-978-94-007-0164-9. E-book version ISBN 978-94-007-0165-6.

B4) V. Faraoni 2006, *Exercises in Environmental Physics* (Springer, New York). 330 pages, ISBN-10: 0-387-33912-4, ISBN-13: 978-0387-33912-2. E-book version ISBN 978-0-387-35835-2.

B5) V. Faraoni 2004, *Cosmology in Scalar Tensor Gravity*, Fundamental Theories of Physics Series, vol. 139 (Kluwer Academic, Dordrecht). 267 pages, ISBN 1-4020-1988-2. E-book version ISBN 978-1-4020-1989-0.

Refereed articles (136)

A1) V. Faraoni, F. Hammad, A.M. Cardini & T. Gobeil 2018, "Revisiting the analogue of the Jebsen-Birkhoff theorem in Brans-Dicke gravity", *Phys. Rev. D* **97**, 084033/1-6 (2018) (arXiv:1801.00804).

A2) V. Faraoni, D.K. Çiftci & S.D. Belknap-Keet 2018, "Symmetry of Brans-Dicke gravity as a novel solution-generating technique", *Phys. Rev. D* **97**, 064004/1-11 (arXiv:1712.02205).

A3) D.K. Çiftci & V. Faraoni 2018, "Perfect fluid solutions of Brans-Dicke and $f(R)$ cosmology", *Ann. Phys. (NY)* **391**, 65-82 (arXiv:1711.04026).

A4) V. Faraoni, A.M. Cardini & W.-J. Chung 2018, "Simultaneous baldness and cosmic baldness and the Kottler spacetime", *Phys. Rev. D* **97**, 024046/1-9 (arXiv:1711.01880).

A5) C. Gao, Y. Lu, Y.-G. Shen & V. Faraoni 2018, "Pulsations of a black hole", *Gen. Rel. Gravit.* **50**, 15/1-19 (arXiv:1706.08009).

A6) M. Lapierre-Léonard, V. Faraoni & F. Hammad 2017, "Cosmological applications of the Brown-York quasilocal mass", *Phys. Rev. D* **96**, 083525/1-8 (arXiv:1710.06460).

A7) V. Faraoni & S.D. Belknap-Keet 2017, "New inhomogeneous universes in scalar-tensor and $f(R)$ gravity", *Phys. Rev. D* **96**, 044040/1-13 (arXiv:1705.05749).

A8) V. Faraoni 2017, "Three new roads to the Planck scale", *Am. J. Phys.* **85**, 865-869 (arXiv:1705.09749).

A9) V. Faraoni 2017, "Solving the Vialov equation of glaciology in terms of elementary functions", *Mathematical Geosciences* **49** (8), 1057-1067 (arXiv:1706.03439).

A10) V. Faraoni 2017, "Jordan frame no-hair for spherical scalar-tensor black holes", *Phys. Rev. D* **95**, 124013/1-5 (arXiv:1705.07134).

A11) V. Faraoni & M. Lapierre-Léonard 2017, "Beyond lensing by the cosmological constant", *Phys. Rev. D* **95**, 023509/1-5 (arXiv:1608.03164).

A12) V. Faraoni & A.M. Cardini 2017, "Analogues of glacial valley profiles in particle mechanics and in cosmology", *FACETS* **2**, 286-300 (arXiv:1608.02542).

A13) V. Faraoni, G.F.R. Ellis, J.T. Firouzjaee, A. Helou & I. Musco 2017, "Foliation dependence of black hole apparent horizons in spherical symmetry", *Phys. Rev. D* **95**, 024008/1-11 (arXiv:1610.05822).

A14) V. Faraoni, F. Hammad & S.D. Belknap-Keet 2016, "Revisiting the Brans solutions of scalar-tensor gravity", *Phys. Rev. D* **94**, 104019/1-14 (arXiv:1609.02783).

A15) V. Faraoni 2016, "Volume/area scaling of glaciers and ice caps and their longitudinal profiles", *J. Glaciol.* **62**, 928-932.

A16) A. Prain, V. Vitagliano, V. Faraoni & M. Lapierre-Léonard 2016, "Hawking-Hayward quasi-local energy under conformal transformations", *Class. Quantum Grav.* **33**, 145008 (arXiv:1501.02977).

A17) V. Faraoni, S. Belknap-Keet & M. Lapierre-Léonard 2016, "Paczynski-Wiita-like potential for any static spherical black hole in metric theories of gravity", *Phys. Rev. D* **93**, 044042/1-8 (arXiv:1511.00699).

A18) V. Faraoni, A. Prain & A.F. Zambrano Moreno 2016, "Black holes and wormholes subject to conformal mappings", *Phys. Rev. D* **93**, 024005/1-8 (arXiv:1509.04129).

A19) V. Faraoni 2016, "Turnaround radius in modified gravity", *Phys. Dark Universe* **11**, 11-15 (arXiv:1508.00475).

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A21) V. Faraoni 2015, "Is the Hawking quasilocal energy "Newtonian"?", invited paper in *Revealing the Symmetries of the Universe: Dark Energy, Inflation and Modified Gravity*, special issue of *Symmetry* **7**, 2038-2046, S. Nojiri and V. Oikonomou eds. (arXiv:1510.03789).

A22) V. Faraoni, M. Lapierre-Léonard & A. Prain 2015, "Turnaround radius in an accelerated universe with quasi-local mass", *JCAP* **10**, 013/1-15 (arXiv:1508.01725).

A23) V. Faraoni, M. Lapierre-Léonard & A. Prain 2015, "Do Newtonian large-scale structure simulations fail to include relativistic effects?", *Phys. Rev. D* **92**, 023511/1-8 (arXiv:1503.02326).

A24) V. Faraoni 2015, "Lemaître model and cosmic mass", *Gen. Rel. Gravit.* **47**, 84/1-9 (arXiv:1506.06358).

A25) V. Faraoni & M.W. Vokey 2015, "The thickness of glaciers", *Eur. J. Phys.* **36**, 055031/1-10.

A26) V. Faraoni 2015, "What happened to special relativity in the Physics curriculum?", *Physics in Canada* vol. 71, No. 1, 33.

A27) V. Faraoni, J.B. Dent & E.N. Saridakis 2014, "Covariantizing the interaction between dark energy and dark matter", *Phys. Rev. D* **90**, 063510/1-7 (arxiv:1405.7288).

A28) V. Faraoni, A.F. Zambrano Moreno & A. Prain 2014, "Charged McVittie spacetime", *Phys. Rev. D* **89**, 103514/1-7 (arXiv:1404.3929).

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A30) V. Faraoni 2013, "Evolving black hole horizons in general relativity and alternative gravity", invited paper in *Aspects of Black Hole Physics*, special issue of *Galaxies* **1**, 114-179, L. Vanzo ed. (arXiv:1309.4915).

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A40) V. Faraoni 2012, "Correspondence between a scalar field and an effective perfect fluid", *Phys. Rev. D* **85**, 024040/1-5 (arXiv:1201.1448).

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A43) V. Faraoni 2011, "Cosmological apparent and trapping horizons", *Phys. Rev. D* **84**, 024003/1-15 (arXiv:1106.4427).

A44) V. Faraoni & A.B. Nielsen 2011, "The horizon-entropy increase law for causal and quasi-local horizons and conformal field redefinitions", *Class. Quantum Grav.* **28**, 175008/1-21 (arXiv:1103.2089).

A45) V. Faraoni 2011, "R^n gravity and the chameleon", *Phys. Rev. D* **83**, 124044/1-5 (arXiv:1106.0328).

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A49) V. Faraoni 2010, "Black hole entropy in scalar-tensor and $f(R)$ gravity: an overview", invited paper in "Entropy in Quantum Gravity", special issue of , R. Garattini ed. (arXiv:1005.2327).

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A51) V. Faraoni 2010, "Jebsen-Birkhoff theorem in alternative gravity", *Phys. Rev. D* **81**, 044002/1-10 (arXiv:1001.2287).

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A53) V. Faraoni 2009, "The Lagrangian description of perfect fluids and modified gravity with an extra force", *Phys. Rev. D* **80**, 124040/1-3 (arXiv:0912.1249).

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A55) V. Faraoni 2009, "Clifton's spherical solution in $f(R)$ vacuum harbours a naked singularity", *Class. Quantum Grav.* **26**, 195013/1-7 (arXiv:0909.0514).

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A59) S. Bellucci, S. Capozziello, M. De Laurentis & V. Faraoni 2009, "Position and frequency shifts induced by massive modes of the gravitational wave background in alternative gravity", *Phys. Rev. D* **79**, 104004/1-10 (arXiv:0812.1348).

A60) V. Faraoni, C. Gao, X. Chen & Y.-G. Shen 2009, "What is the fate of a black hole embedded in an expanding universe?", *Phys. Lett. B* **671**, 7-9 (arXiv:0811.4667).

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A65) E. Elizalde, S. Nojiri, S.D. Odintsov, D. Sáez-Gómez & V. Faraoni 2008, "Reconstructing the universe history, from inflation to acceleration, with phantom and canonical scalar fields", *Phys. Rev. D* **77**, 106005/1-16 (arXiv:0803.1311).

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A67) V. Faraoni & N. Lanahan-Tremblay 2008, "Comments on "Solar System constraints to general $f(R)$ gravity"", *Phys. Rev. D* **77**, 108501/1-2 (arXiv:0712.3252).

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A71) N. Lanahan-Tremblay & V. Faraoni 2007, "The Cauchy problem of $f(R)$ gravity", *Class. Quantum Grav.* **24**, 5667-5679 (arXiv:0709.4414).

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A74) V. Faraoni 2007, "No "big trips" for the universe", *Phys. Lett. B* **647**, 309-312 (arXiv:gr-qc/0702143).

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A81) V. Faraoni & M.N. Jensen 2006, "Extended quintessence, inflation, and stable de Sitter spaces", *Class. Quantum Grav.* **23**, 3005-3015 (arXiv:gr-qc/0602097).

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A90) V. Faraoni 2004, "Singularities in scalar-tensor gravity", *Phys. Rev. D* **70**, 047301/1-3 (arXiv:gr-qc/0403020).

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