Jeff **Murugan**

Department of Mathematics & Applied Mathematics ○ University of Cape Town, Rondebosch ○ South Africa, 7700
Tel: (+27) 21 650 3815 ○ Mobile: (+27) 82-966-0568 ○ Email: jeff.murugan@uct.ac.za ○ Web: jeffmurugan.com

POSITIONS HELD

2024 - **Acting Deputy Vice Chancellor for Research and Internationalisation**
· University of Cape Town, South Africa

2020 - **Professor of Mathematical Physics**
· University of Cape Town, South Africa

2020 - 2025 **Simons Associate**
· International Center for Theoretical Physics, Trieste, Italy

2019 - 2021 **Deputy Dean for Postgraduate Matters and Research**
· Faculty of Science, University of Cape Town, South Africa

2016 - 2019 **Research Associate in the Division of Physical Sciences**
· American Museum of Natural History, New York, USA

2016 - 2017 **Member in the School of Natural Sciences**
· Institute for Advanced Study, Princeton, USA

2015 - 2019 **Associate Professor**
· University of Cape Town, South Africa

2013 - 2019 **Deputy Head of Department of Mathematics & Applied Mathematics**
· University of Cape Town, South Africa

2010 - 2014 **Senior Lecturer**
· University of Cape Town, South Africa

2006 - 2009 **Lecturer**
· University of Cape Town, South Africa

2004 - 2006 **Postdoctoral Fellow**
· Department of Physics, Brown University, Providence, USA

2000 - 2004 **Sainsbury-Lindbury Fellow**
· Worcester College, Oxford University, Oxford, UK

EDUCATION

2000 - 2004 **PhD in Mathematical Physics**
· University of Cape Town · Supervisor: George F.R. Ellis

2000 - 2002 **Visiting PhD Student**
· Mathematical Institute, Oxford University · Supervisor: Philip Candelas

2000 **MSc in Mathematical Physics** with Distinction
· University of Cape Town · Supervisor: Igor V. Barashenkov

1997 **BSc. (Hons) in Applied Mathematics** with Distinction
· University of Cape Town, South Africa.

1996 **BSc. in Applied Mathematics and Physics** with Distinction
· University of Cape Town, South Africa.

SPECIALISATION & SKILLS

Research Areas
· Mathematical Physics · Quantum Matter · Quantum Information · Gravity · Topological Data Analysis
Management
· Management of large teams · Fundraising · Conflict Resolution · Institutional Financial Planning
Programming
· C/C++ · Latex · Matlab · Mathematica · Maple

SELECTED PRIZES & HONOURS

2022 - **Member**
· Academy of Science of South Africa
2020 - 2025 **Simons Associateship**
· The International Centre for Theoretical Physics, Trieste, Italy
2018 **Distinguished Teacher Award**
· Highest teaching honour awarded at the University of Cape Town
2017 - **Vice-President**
· BRICS Association for Gravity, Astrophysics & Cosmology
2015 - **President**
· South African Gravity Society
2011 - 2013 **Founding Member**
· South African Young Academy of Science
2003 **South African Institute of Physics Prize**
· Best PhD oral presentation in theoretical physics
1998 **Bronze Medal**
· South African Mathematical Society
1997 **Ivor Lewin Prize**
· Best undergraduate physics result at the University of Cape Town

PUBLICATION RECORD

All research publications indicated appear (or will appear) in ISI rated journals. Authors, by convention in my field, are alphabetically listed unless, rarely, one author has contributed significantly more than others. In all of my research articles, I have contributed at every step, usually conception of the idea, computations and significant parts of writing up the article. All numbers listed as `hep-th/xxxxxxx` or `arXiv:xxxx.xxx`, refer to the electronic bullitin board number (http://www.arxiv.org/).

PEER REVIEWED OR SUBMITTED ARTICLES

1. F. Divi, **J. Murugan**, D. Rosa, "*Sachdev-Ye-Kitaev charging advantage as a random walk on graphs*, Phys.Rev. B 111 (2025) 7, 075138, `arXiv:2412.04560`
2. **J. Murugan**, Z. Pandit, H.J.R. Van Zyl, "*On complexity and duality*", JHEP 03 (2025) 062, `arXiv:2411.02546`
3. C. Beetar, N. Gupta, S. Haque, **J. Murugan**, H.J.R. Van Zyl, "*Complexity and Operator Growth for Quantum Systems in Dynamic Equilibrium*, JHEP 08 (2024) 156, `arXiv:2312.15790`
4. C. Lau, C-T Ma, **J Murugan**, M Tezuka, "*On the backreaction of Dirac matter in JT gravity and SYK model*", Phys.Lett.B 853 (2024) 138702, `arXiv:2312.06128`

5. S. Bhatporia, A. Walters, **J. Murugan**, A. Weltman, "*A Topological Data Analysis of the CHIME/FRB Catalogues*", arXiv:2311.03456

6. A. Bhattacharyya, S. Haque, Ghadir Jafari, **J. Murugan**, D. Rapotu, "*Krylov complexity and spectral form factor for noisy random matrix models*", JHEP 10 (2023) 157, arXiv:2307.15495

7. **J. Murugan**, R.P. Slayen, H.J.R. Van Zyl, "*Random Chern-Simons Matter in $D = 1$*", arXiv:2307.01099

8. K. le Roux, **J. Murugan**, S. Marquard and P. Adams, "*Undergraduate Mathematics Students' Reported Use of Learning Resources Towards Accessing Mathematics*", African Journal of Research in Mathematics, 27 (2023)

9. A. Andreanov, M. Carrega, **J. Murugan**, J. Olle, D. Rosa,"*From Dyson Models to Many-Body Quantum Chaos*", Phys.Rev.B 111 (2025) 3, 035147, arXiv:2302.00917

10. P. Caputa, N. Gupta, S. S. Haque, S Liu, **J. Murugan**, H. J.R. Van Zyl, "*Spread Complexity and Topological Transitions in the Kitaev Chain*", accepted in JHEP, arXiv:2208.06311

11. **J. Murugan**, "*From Chern-Tenenblat to Jackiw-Teitelboim via sine-Gordon*", Nankai Symposium on Mathematical Dialogues arxiv:2201.00026

12. J. Kim, **J. Murugan**, J. Olle & D. Rosa, "*Operator Delocalization in Quantum Networks*," Phys.Rev.A 105 (2022) 1, L010201, arXiv:2109.05301,

13. C. Beetar, **J. Murugan** & D. Rosa, "*Neural Networks as Universal Probes of Many-Body Localization in Quantum Graphs*," submitted to PRL, arXiv:2108.05737

14. **J. Murugan**, J. Shock & R.P. Slayen "*Remarks on fermions in a dipole magnetic field*," **JHEP 10.082** (2021), arXiv:2107.10076

15. **J. Murugan** & H. Nastase, "*A 4D Duality Web,*" submitted to JHEP, arXiv:2103.12667

16. A Bhattacharyya, W Chemissany, S. S Haque, **J Murugan**, B Yan, "*The Multi-faceted Inverted Harmonic Oscillator: Chaos and Complexity*", SciPost Phys.Core 4 (2021) 002, arXiv:2007.01232.

17. D. J. Burger, N Moynihan, **J Murugan**, "*On-Shell Perspectives on the Massless Limit of Massive Supergravity*", arXiv:2005.14077

18. C. Lau, C-T Ma, **J Murugan**, M Tezuka, "*Correlated Disorder in the SYK_2 model*", arXiv:2003.05401

19. N. Moynihan, **J. Murugan**, "*On-Shell Electric-Magnetic Duality and the Dual Graviton*", arXiv:2002.11085

20. **J. Murugan**, J. P. Shock, R.P. Slayen, "*Notes on the Squashed Sphere Lowest Landau Level*", arXiv:1909.08042

21. T. Ali, A. Bhattacharyya, S.S. Haque, E.H. Kim, N. Moynihan & **J. Murugan**, "*Chaos and Complexity in Quantum Mechanics* ," arXiv:1901.04561, submitted to Phys. Rev. Lett.

22. **J. Murugan** & D. Robertson, "*An Introduction to Topological Data Analysis for Physicists: From LGM to FRBs*," arXiv:1904.11044, submitted to JCAP.

23. J-G. Hartmann, **J. Murugan** & J.P. Shock, "*Chaos and Scrambling in Quantum Small Worlds*," arXiv:1901.04561, submitted to Phys. Rev. Lett.

24. **J. Murugan** & H. Nastase, "*One-dimensional bosonization and the SYK model,*" arXiv:1812.11929, submitted to JHEP.

25. P-H. C. Lau, C-T. Ma, **J. Murugan** & M. Tezuka, "*Randomness and Chaos in Qubit Models*," accepted in Phys. Lett. B. arXiv:1812.04770

26. **J. Murugan**, R.P. Slayen & J.P. Shock, "*Astrophysical Quantum Matter: Spinless charged particles on a magnetic dipole sphere*," arXiv:1811.03109, submitted to Phys. Lett. B.

27. N. Moynihan, **J. Murugan**, "*Comments on scattering in massive gravity, vDVZ and BCFW*", Class. Quant. Grav.**35**, 155005 (2018) arxiv:1711.03956

28. **J. Murugan**, D. Stanford & E. Witten, "*More On Supersymmetric And 2d Analogs of the SYK Model*," JHEP **1708** (2017) 159, arxiv:1706.05362

29. D. Burger, R. Carballo-Rubio, N. Moynihan, **J. Murugan** & A. Weltman, "*Amplitudes for Astrophysicists I: Known knowns*," Gen.Rel.Grav. 50 (2018) no.12, 156, arXiv:1704.05067

30. T. Ali, S. Haque & **J. Murugan**, "*Holographic Entanglement Entropy for Gravitational Anomaly in Four Dimensions*," JHEP **1703:084** (2017), arXiv:1611.03415

31. **J. Murugan** & H. Nastase, "*Particle-vortex duality in topological insulators and superconductors*," JHEP **1705:159** (2017), arXiv:1512.08926

32. **J. Murugan** & H. Nastase, "*A nonabelian particle-vortex duality in gauge theories*," JHEP **1608:141** (2016), arXiv:1606.01912

33. D. Burger, **J. Murugan**, GFR Ellis and A. Weltman, arXiv:1511.08517, "*The KLT relations in unimodular gravity*," submitted to Class. & Quant. Grav.

34. C. Lopez-Arcos, **J. Murugan**, H. Nastase, "*Nonrelativistic limit of the abelianized ABJM model and the ADS/CMT correspondence*," JHEP **1605:165** (2016), arXiv:1510.01662

35. M. C. Abbott, **J. Murugan**, J. Tarrant, "*Fermionic T-Duality of $AdS_n \times S^n(\times S^n) \times T^m$ using IIA Supergravity*," Class. Quant. Grav.**3**, 075008 (2016), arXiv:1509.07872

36. M. C. Abbott, **J. Murugan**, S. Penati, A. Pittelli, D. Sorokin, P. Sundin, J. Tarrant, M. Wolf, L. Wulff, "*T-Duality of Green-Schwarz Superstrings on AdS(d) x S(d) x M(10-2d)*," JHEP **1512:104** (2015), arXiv:1509.07678

37. E. Malek, **J. Murugan**, and J. P. Shock, "*The Information Metric on the moduli space of instantons with global symmetries*," Phys.Lett. **B753** (2016) 660-663, arXiv:1507.08894

38. **J. Murugan** and H. Nastase, "*A Nonabelian Particle-Vortex Duality*," Phys.Lett. **B753** (2016) 401-405, arXiv:1506.040

39. T. Clingman, **J. Murugan** and J. P. Shock, "*Probability Density Functions from the Fisher Information Metric*," (2015) arXiv:1504.03184

40. S Kanno, **J. Murugan**, J. P. Shock, J Soda, "*Entanglement entropy of α-vacua in de Sitter space*", JHEP **1407:072** (2014), arXiv:1404.6815

41. **J. Murugan**, H Nastase, N Rughoonauth, J. P. Shock, "*Particle-vortex and Maxwell duality in the $AdS_4 \times \mathbf{CP}^3$ correspondence*", JHEP **1410:051** (2014), arXiv:1404.5926

42. M. C. Abbott, **J. Murugan**, A Prinsloo, N Rughoonauth, "*Meromorphic Functions and the Topology of Giant Gravitons*", Phys.Lett. **B730** (2014) 215-220

43. M. C. Abbott, **J. Murugan**, P Sundin, L Wulff, "*Scattering in AdS(2)/CFT(1) and the BES Phase*", JHEP **1310** (2013) 066

44. C Lopez-Arcos, H Nastase, F Rojas, **J. Murugan**, "*Conductivity in the gravity dual to massive ABJM and the membrane paradigm*", JHEP **1401** (2014) 036.

45. Y Lozano, **J. Murugan**, A Prinsloo, "*A giant graviton genealogy*", JHEP **1308** (2013) 109.

46. **J. Murugan** and H Nastase, "*On abelianizations of the ABJM model and applications to condensed matter*", arXiv:1301.0229

47. R. de Mello Koch, **J. Murugan** and N Nokwara, "*Large N anomalous dimensions for large operators in Leigh-Strassler deformed SYM*," Phys. Lett. B 721, p164 (2013) arXiv:1212.6624

48. A. Mohammed, **J. Murugan** and H. Nastase, "*Abelian-Higgs and Vortices from ABJM: towards a string realization of AdS/CMT*," Phys. Rev. Lett. (2012), 109, 181601 arXiv:1205.5833

49. "*Classical and quantum integrability in AdS_2/CFT_1*," **J. Murugan**, P. Sundin and L. Wulff, JHEP **1301:047** (2013) arXiv:1209.6062

50. A. Mohammed, **J. Murugan** and H. Nastase, "*Towards a Realization of the Condensed-Matter/Gravity Correspondence in String Theory via Consistent Abelian Truncation*," JHEP **1211:073** (2012) arXiv:1206.7058.

51. R. de Mello Koch, B.A.E. Mohammed, **J. Murugan** and A. Prinsloo, "*Beyond the Planar Limit in ABJM*," JHEP **1205:037** (2012) arXiv:1202.4925.

52. D. Giovannoni, **J. Murugan** and A. Prinsloo, "*The giant graviton on $AdS_4 \times \mathbb{CP}^3$ - another step towards the emergence of geometry*," JHEP **1112:003** (2011) arXiv:1108.3084.

53. **J. Murugan** and A. Prinsloo, "*ABJM Dibaryon spectroscopy*", JHEP **1105:129** (2011) arXiv:1103.1163.

54. D de Klerk, **J. Murugan** and J.P. Uzan, "*The Catenary Revisited: From Newtonian Strings to Superstrings*", To appear in Am. J. Phys. arXiv:1103.0788

55. G.F.R. Ellis, H van Elst, **J. Murugan** and J.P. Uzan, "*On the Trace-Free Einstein Equations as a Viable Alternative to General Relativity*", Class. Quant. Grav. **28**, 225007 (2011) arXiv:1008.1196.

56. A Mohammed, **J. Murugan** and H. Nastase, "*Looking for a matrix model of ABJM*", Phys. Rev **D82** 086004 (2010) arXiv:1003.2599.

57. A. Hamilton, **J. Murugan** and A. Prinsloo, "*Lessons from giant gravitons on $AdS_5 \times T^{1,1}$*", JHEP **1006:017** (2010) arXiv:1001.2306.

58. R. de Mello Koch and **J. Murugan**, "*Emergent Spacetime*", 0911.4817.

59. A. Hamilton, **J. Murugan**, A. Prinsloo and M. Strydom, "*A Note on dual giant gravitons in $AdS_4 \times \mathbb{CP}^3$*," JHEP **0904:132** (2009) arXiv:0901.0009 .

60. A Hamilton and **J. Murugan**, "*On the shoulders of giants: Quantum Gravity and braneworld stability*", arXiv:0806.327

61. A. Hamilton, **J. Murugan** and A. Prinsloo, "*A note on the Hagadorn behaviour of deformed pp-wave strings*", JHEP **0802:108** (2008) arXiv:0712.3059.

62. A. Hamilton and **J. Murugan**, "*Giant gravitons on deformed pp-waves''*", JHEP **0707:036** (2007) hep-th/0609135.

63. R. de Mello Koch, **J. Murugan**, J. Smolic and M. Smolic, "*Deformed pp-waves from the Lunin-Maldacena background''*", JHEP **0508:072** (2005) hep-th/0505227.

64. A. Guijosa, D. Lowe and **J. Murugan**, "*A Prototype for dS/CFT*", Phys. Rev. D **72**, 046001 (2005) hep-th/0505145

65. A. Millner and **J. Murugan**, "*Transmogrifying fuzzy vortices''*", JHEP **0404:009** (2004) hep-th/0403105.

66. G.F.R. Ellis, **J. Murugan** and C.G. Tsagas,"*The Emergent Universe: An Explicit Construction*" Class. Quant. Grav.**21**, 233-250 (2004) gr-qc/0307112

67. P. Cook, R. de Mello Koch and **J. Murugan**, "*Non-Abelian BIonic Brane Inersections,"* Phys. Rev. D **68**, 126007 (2003) hep-th/0306250

68. R. Adams and **J. Murugan**, "*Comments on Noncommutative Sigma Models*," JHEP **0212:073** (2002) `hep-th/0211171`.

69. G.F.R. Ellis, **J. Murugan** and T Rothman, "*Holonomy in the Schwarzchild-Droste Geometry*," Class. Quant. Grav.**18** 1217-1234 (2001) `gr-qc/0008070`.

PROCEEDINGS

1. D. J. Burger, R. Carballo-Rubio, N. Moynihan, **J. Murugan** and A. Weltman, "*Amplitudes, Gravity and Classical Discontinuities,*" Proceedings of the 54th Recontres de Moriond, 2019 `arXiv:1905.05128`

2. **J Murugan**, "*Non-singular inflationary cosmology - The emergent universe*", Proceedings of the workshop "Mathematics Of Gravitation II". Warsaw, September 1 - 9, 2003. Editors: A. Królak and K. Borkowski.,

3. I.V. Barashenkov and **J Murugan**,"*Vortices in the gauged complex sine-Gordon model*", Proceedings of the 3^{rd} Hanno-Rund conference on differential equations and applications, Editor: J Banasiak (2000).

BOOKS AND CHAPTERS

1. Lead Editor: **J Murugan**, G.F.R. Ellis and A. Weltman,"*Foundations of Space and Time - Reflections on Quantum Gravity*", with Cambridge University Press (2012), ISBN 9780521114400

2. R de Mello Koch and **J Murugan**, "*Emergent Spacetime,*" Chapter 9 in "Foundations of Space and Time - Reflections on Quantum Gravity", Cambridge University Press (2012), ISBN 9780521114400

3. **J Murugan**, A. Weltman and G.F.R. Ellis, "*The problem with quantum gravity,*" Chapter 1 in "Foundations of Space and Time - Reflections on Quantum Gravity", Cambridge University Press (2012), ISBN 9780521114400

4. A. Weltman, **J Murugan** and G.F.R. Ellis, "*Conversations in string theory,*" Chapter 18 in "Foundations of Space and Time - Reflections on Quantum Gravity", Cambridge University Press (2012), ISBN 9780521114400

SCIENTIFIC SOCIAL NETWORKS

ORCID ID
QGASLAB Group Webpage
Google Scholar
INSPIRE-HEP Profile
YouTube Channel

SELECTED INVITED SEMINARS & LECTURES

2022 **65th Congress of the South African Mathematical Society**
·Invited plenary speaker
2021 **Nankai Symposium on Mathematical Dialogues**
·Invited plenary speaker
2021 **Strings 2021, Sao Paulo, Brazil**
·Invited plenary speaker
2021 **Physics Colloquium, Brown University**
·Invited colloquium speaker
2020 **National Institute for Theoretical Physics, South Africa**
·Invited colloquium speaker
2020 **Physics Colloquium Speaker, University of Washington St. Louis**

·Invited colloquium speaker

2020 **Particle Theory Seminar, Oxford University**
·Invited speaker

2019 **Amsterdam Summer String Workshop, Amsterdam**
·Invited participant

2019 **Strings 2019, Brussels, Belguim**
·Invited session chair

2019 **New Pathways in Explorations of QFT and Quantum Gravity Beyond SUSY ICTP, Trieste 2019**
·Invited plenary speaker

2019 **Scanning New Horizons String Conference, Groningen, Netherlands**
·Invited plenary speaker

2018 **Chaos and Order Extended Workshop, KITP, Santa Barbara, USA**
·Invited session chair

2018 **The 4th International Conference on Topological Orders, Emergent Spacetime and Quantum Simulators, China**
·Invited plenary speaker

2018 **Holography, quantum entanglement and higher spin gravity II conference, YITP, Kyoto, Japan**
·Invited plenary speaker

2017 **SRITP Post-Strings Workshop at the Weizmann Institute, Israel**
·Invited plenary speaker

2017 **Fundamental Physics with the SKA, Mauritius**
·Invited plenary speaker

2016 **ICTP/SISSA String Workshop, Trieste, Italy**
·Invited plenary speaker

2016 **Low Energy Challenges for High Energy Physicists, Perimeter Institute, Canada**
·Invited plenary speaker

2014 **Strings 2014, Princeton, USA**
·Invited speaker

PUBLIC SCHOLARSHIP

2020 **"Viral Spreading in a Small World"**,
· J. Murugan and A. Weltman, South African Journal of Science, 2020 (https://www.sajs.co.za/idm314)

2016 **" Gravitational waves: will the global south provide the next pulse of gravity research?"**
· J. Murugan and A. Weltman, The Conversation Africa

2016 **"Why it's crucial that young scientists are taught the value of being wrong"**
· J. Murugan and A. Weltman, The Conversation Africa

SELECT MEDIA COVERAGE

2020 Record attendance for Virtual Strings 2020 conference
2019 A passion for mathematics leads to success
2019 No stupid questions in Distinguished Teacher's classes
2019 Shaping the Future: topology and big data
2016 TEDx Table Mountain - The Shape of Things to Come
2012 Putting the rocket in scientist

LEADERSHIP & ADMINISTRATION

DEPARTMENT

2013 - **Founder and Head, Laboratory for Quantum Gravity & Strings**
· Responsible for research group of 4 faculty, 2 postdoctoral fellows and ± 6 graduate students

2013 - 2019 **Deputy and Acting Head, Department of Mathematics & Applied Mathematics, University of Cape Town**
· Responsible for the daily management of a large department of roughly 50 staff, 50 graduate students.

2014 - 2016 **Chair, MAM 5-year Strategic Planning Committee**
· Responsible for formulating a coherent 5-year vision for departmental research, teaching and development.

2010 - 2011 **Member, Mathematics Curriculum Review Committee**
· Responsible for input into revising and updating the course curricula for pure mathematics courses.

2009 **Chair, Applied Mathematics Curriculum Review Committee**
· Coordinated the complete revision of the course curricula for undergraduate applied mathematics courses.

FACULTY

2020 - 2022 **Core Member, Science Faculty Teaching Task Team**
· Responsible for coordinating the COVID19 post-lockdown restart of graduate program across Faculty of Science.

2019 - 2021 **Deputy and Acting Dean of Science for Postgraduate Matters and Research**
· Responsibilities: managing research agenda, graduate students, financial planning and conflict resolution.

2019 - 2021 **Core Member, Faculty PhD Committee of Assessors**
· Responsible for independent assessment of all Science PhD examinations and recommending outcomes to DDB.

2019 - 2021 **Chair, Faculty MSc Committee of Assessors**
· Responsible for final assessment of outcomes for all Science MSc theses.

2019 - 2021 **Member, Science Faculty Teaching & Learning Committee**
· Responsible for providing postgraduate input into the faculty T&L committee.

2019 - 2021 **Member, Dean's Executive Committee**
· Advising of the Dean of the Faculty on daily (academic, HR and financial) management of the Faculty of Science.

2019 - 2021 **Core Member, Dean's Advisory Committee**
· Responsible for advising the Dean of Science Faculty governance matters.

2017 - 2019 **Core member, Faculty of Science Remunerations & Promotions Committee**
· Responsible for assessing ad hominem promotions applications across the full Science Faculty.

UNIVERSITY

2023 - **Member, University Executive Committee**
· This is the apex management committee for the University of Cape Town.

2021 - **Deputy and Acting Chair, University Research Council**
· Responsible for managing the University research agenda including financial oversight and vision.

2020 - 2021 **Core Member, Covid-19 Postgraduate Task Team**
· Responsible for university-wide integration of Science Faculty post-COVID19 graduate programs.

2020 - 2021 **Core Member, Covid-19 Research Task Team**
· Responsible for coordinating post-COVID19 research and safety protocols across the university.

2023 - **Member, Senate Executive Committee, University of Cape Town**
· As Acting Dean of Science, SEC informs and advises the University Senate.

2023 - **Chair, Board for Graduate Studies**
· Science Faculty representative on the governing board for graduate matters across the university.

2019 - 2021 **Member, Doctoral Degrees Board**
· Science Faculty representative on the board responsible for all PhD examination processes

2023 - **Chair, Postgraduate Funding Committee**
· Deputy Dean (Science) giving input on full financial management for the university-wide graduate program.

2018 - 2020 **Senate Representative, Undergraduate Funding Committee**
· Elected representative of UCT Senate giving input on financial management for the undergraduate program.

2017 - **Member, Senate of the University of Cape Town**
· Active member of the apex decision making body of the university on academic matters.

EXTERNAL

2023 - 2023 **Member, US DOE Theory Review Panel**
· Invited international member of the US Department of Energy grant review panel.

2021 - 2023 **Member, String Planning Committee**
· Chaired by David Gross, this is the senior advisory committee to the annual Strings Conference Series.

2019 - 2020 **Chair, Organising Committee, Strings 2020**
· Responsibilities: Writing the proposal to host, fundraising, conference coordination and planning.

2019 - 2020 **Chair, Organising Committee, String Math 2020**
· Responsibilities: Writing the proposal to host, fundraising, conference coordination and planning.

2019 - 2022 **Vice-Chair, Gordon Research Conference for String Theory & Cosmology, 2021**
· Co-Chair together with Profs Cora Dvorkin and Jan Pieter van der Schaar

2014 - 2021 **Invited Member, International Scientific Board, Strings International Conference**
· Advisory input to local scientific committees for the annual Strings Conferences.

2018 - 2022 **Invited Member, DST Expert Panel for Development of NITHECS**
· Responsible for advising government on the development of a National Institute for Theoretical Sciences

2018 - 2019 **Chair, Organising committee, International Conference on "Duality, Disorder & Chaos"**
· Responsible for fundraising and coordinating this international workshop.

2017 - **Vice-President (SA), BRICS Association for Gravity, Astrophysics and Cosmology**
· Responsible for financial management and coordination of a 5-country multi-lateral partnership.

2015 - **President, South African Gravity Society**
· Responsible for the national coordination of gravity researchers; finance and organisation of annual conference.

2011 - 2013 **Founding Member, South African Young Academy of Science**
· Responsibilities include: scientific outreach and advising governments on science-based policy.

2008 - **Member, Scientific Advisory Committee, Cape Town Science Center**