Curriculum Vitae: Andrew R. Frey

Contact Information

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Education and Employment

2023-pres.	University of Winnipeg (UWinnipeg), Winnipeg, MB: **Professor of Physics**.
2016-2023	University of Winnipeg (UWinnipeg), Winnipeg, MB: **Associate Professor of Physics**.
2011-2016	UWinnipeg: **Assistant Professor of Physics**.
2008-2011	McGill University, Montréal, QC: **Research associate and instructor**.
2006-2008	McGill University, Montréal, QC: **Postdoctoral fellow**.
2003-2006	California Institute of Technology (Caltech), Pasadena, CA: **Postdoctoral fellow**.
1998-2003	University of California, Santa Barbara (UCSB), CA: **Ph.D. in physics**, string theory. Advisor: J. Polchinski, "Warped strings: Self-dual flux and contemporary compactifications."
1994-1998	Wake Forest University (WFU), Winston-Salem, NC: **B.S. with honors in physics and mathematics**, *summa cum laude*.

Research Experience

2023-pres.	**Professor**, UWinnipeg: particle physics, string theory, and their intersection with cosmology;
2022-pres.	**Adjunct Professor** of Applied Computer Science, UWinnipeg.
2012-pres.	**Adjunct Professor**, University of Manitoba (UManitoba), Winnipeg, MB.
2012-pres.	**Affiliate Member**, Perimeter Institute (PI), Waterloo, ON
2016-2023	**Associate Professor**, UWinnipeg.
2011-2016	**Assistant Professor**, UWinnipeg.
2008-2011	**Research associate**, McGill: particle physics, string theory, and their intersection with cosmology.
2006-2008	**Postdoctoral fellow**, McGill: string theory and string cosmology.
2003-2006	**Postdoctoral fellow**, Caltech: novel string theory compactifications, string cosmology.
2000-2003	**Ph.D. Thesis**, UCSB: advisor Joseph Polchinski, generalizations of AdS/CFT correspondence and novel string theory compactifications.
1998-1999	Student, UCSB: supervisor Omer Blaes, radiation from accretion disks around supermassive black holes.

1998 **Undergraduate honors thesis**, WFU: advisor Eric Carlson, cosmological effects of hypothetical fifth force (physics); advisor Stephen Robinson, weak solutions to a singular Sturm-Liouville problem (mathematics).

1997 NSF **Research Experience for Undergraduates**, University of Washington: advisor Martin Savage, basics of quantum field theory and effective theories.

1996 NSF **Research Experience for Undergraduates**, Harvard-Smithsonian Center for Astrophysics: advisor Charles Lada, mass distribution of protostars in the Perseus molecular cloud.

1995 Student, WFU: advisor, Paul Anderson, relativistic solutions of black holes and radiation.

Teaching Experience

2023-pres. **Professor**, UWinnipeg: variously Quantum Mechanics (4th year), Intermediate Mechanics, Advanced Mechanics, Subatomic Physics, Thermal & Statistical Physics.

2012-pres. **Adjunct Professor**, UManitoba: graduate courses in quantum field theory, string theory, and AdS/CFT.

2016-2023 **Associate Professor**, UWinnipeg: variously Quantum Mechanics (3rd- and 4th-year levels), Mathematical Physics II, Intermediate Mechanics, Advanced Mechanics.

2011-2016 **Assistant Professor of Physics**, UWinnipeg: annually Quantum Mechanics I (one term) & II (full year), undergraduate string theory (2013).

2007-2011 **Instructor**, McGill: Supersymmetry & 2nd semester Quantum Field Theory (twice) as co-instructor, Very Early Universe Cosmology and Electromagnetic Theory (twice) as instructor of record.

2006 **Instructor**, Caltech: undergraduate string theory course (instructor of record).

2001-2002 Teaching Assistant, UCSB: quantum field theory, string theory.

1998-2001 Volunteer, UCSB Physics Circus: "actor" in demonstration shows and participant in hands-on physics museums

1995-1998 Teaching Assistant, WFU: introductory physics lab, modern physics lab.

Students Supervised

2025-pres. Akshdeep Gill, UWinnipeg research assistant: gravitational collapse in anti-de Sitter spacetime.

2024 Hardik Kuralkar, MITACS Globalink Research Intern: magnetic D-branes and dimensional reduction.

2023-2024 Akshdeep Gill, high school intern: gravitational collapse in anti-de Sitter spacetime.

2022-2025 Philipp Gregoryanz, UWinnipeg Computer Science MSc student: GPU solution of gravitational collapse in AdS spacetime, **MSc degree Jun. 2025** (defended Dec. 2024).

2022 Prakriti Singh, MITACS Globalink Research Intern: holographic computational complexity in the Klebanov-Strassler background.

2021-2022 Florian Seefeld, McGill undergraduate honours: holographic computational complexity of AdS black hole microstates

2021	Jiayue Yang, MITACS Globalink Research Intern: holographic computational complexity in generalized AdS solitons
2021-2022	Cole Coughlin, UWinnipeg summer research (NSERC USRA) & UManitoba undergraduate honours: computational tools for inhomogeneous tensor network models of gravity
2020-2021	Shawna Skelton, UWinnipeg undergraduate honours & summer research (NSERC USRA): inhomogeneous tensor network models of gravity including de Sitter spacetime decays.
2020-2021	Nathaniel Betts, high school intern: gravitational collapse in anti-de Sitter spacetime.
2020-pres.	Naman Agarwal, UWinnipeg Visiting Graduate Fellow (MSc student at S.V.N.I.T. India) & UManitoba MSc & PhD student: holographic computational complexity in multi-centered AdS spacetime, **SVNIT MSc degree Jan. 2021**.
2019-2020	Timothy Coates, UWinnipeg undergraduate honours: entanglement entropy and complexity in supersymmetric quantum mechanics.
2019	Manu Srivastava, MITACS Globalink Research Intern: gravitational collapse in anti-de Sitter spacetime and holographic computational complexity.
2019-2022	Michael Grehan, UWinnipeg summer research (NSERC USRA) & UWinnipeg undergraduate honours: holographic computational complexity in gravitational collapse and in the Klebanov-Strassler background
2018-2019	Anna Volotovska, high school intern: gravitational collapse in anti-de Sitter spacetime.
2018	Tejhas Kapoor, MITACS Globalink Research Intern: gravitational collapse in anti-de Sitter spacetime.
2017-2018	Samantha Taylor, UWinnipeg undergraduate honours: connecting direct and indirect detection for dark matter.
2017	Yibo Zhong, MITACS Globalink Research Intern: effective field theory of non-Abelian dark matter models.
2017	Apoorva Sinha, MITACS Globalink Research Intern: thermodynamics of string subsystems.
2016-2019	Mitul Patel, UManitoba MSc student: inflation in string theory, **MSc degree Oct. 2019**.
2016-pres.	Brett Meggison, UManitoba MSc & PhD student: nonperturbative methods for the study of graphene (co-supervised with Margaret Carrington, Brandon University), **MSc degree Jan. 2020**.
2016-2018	Brayden Yarish, high school intern: gravitational collapse in anti-de Sitter spacetime.
2016	Anindya Banerjee, MITACS Globalink Research Intern: thermodynamics of string subsystems.
2016-2018	Raphael Hoult, UWinnipeg summer research (NSERC USRA 2017) & undergraduate honours: gravitational collapse in anti-de Sitter spacetime.
2013-2015	Gabriel Chernitsky, UWinnipeg summer research (NSERC USRA) & undergraduate honours: cosmology and astroparticle physics of dark matter.
2012-2020	Bradley Cownden, UManitoba MSc & PhD student: warped string compactifications, **MSc degree Jan. 2015**; gravitational collapse in anti-de Sitter spacetime, **PhD degree Oct. 2020**.
2013-2014	Allison Kolly, UWinnipeg summer research: gravitational collapse in anti-de Sitter spacetime (co-supervised).

2013-2014	Nils Deppe, UWinnipeg summer research: gravitational collapse in anti-de Sitter spacetime (co-supervised).
2013-2014	Jared Enns, UWinnipeg summer research & undergraduate honours: cosmology of dark matter and dark radiation.
2013-2014	Philipp Gregoryanz, UWinnipeg undergraduate honours: inflation in string theory.
2012-2014	Nicholas Reid, UWinnipeg summer research & undergraduate honours: particle & astroparticle physics of dark matter.
2011-2012	James Roberts, UWinnipeg undergraduate honours & summer research: warped string compactifications.
2012	Timothy Chau, UWinnipeg summer research: gravitational collapse in anti-de Sitter spacetime (co-supervised).

Grants, Awards, and Honors

2012-2026	Natural Science and Engineering Research Council of Canada **Discovery Grant** (Early Career Researcher Supplement 2012-15), UWinnipeg.
2012-2026	UWinnipeg Faculty Travel Grants (3), Discretionary Grant (2), Major Research Grant.
2016-2020	Compute Canada Resource Allocation.
2013-2015	Manitoba Career Focus support for student researchers.
2014	Outstanding Referee Award, APS Journals.
2006-2008	Institute of Particle Physics/Perimeter Institute **Postdoctoral Fellowship**, McGill.
2003-2006	John A. McCone **Prize Postdoctoral Fellowship**, Caltech.
1998-2001	National Science Foundation **Graduate Research Fellowship**.
1998-2000	Broida Fellowship, UCSB.
1998	Archie Award for outstanding graduating male senior, chosen by faculty senate, WFU.
1998	West Award for graduating senior with highest GPA, WFU.
1998	Speas Award for graduating senior in physics, WFU.
1998	Phillips Prize for graduating senior in mathematics, WFU.
1996-1998	Raynor Scholarship for mathematics, WFU.
1996	Mathematical Contest in Modeling, Outstanding designation.
1994-1998	Reynolds Scholarship, full merit scholarship, WFU.
1994	International Physics Olympiad, Bronze medal (15th place).
1994	National Merit Scholar.
1994	National Consortium for Specialized Secondary Schools in Mathematics, Science, and Technology Scholarship.
1994	National Science Scholar.

Professional and Honor Societies

2012-pres. Canadian Association of Physicists (CAP), Division of Theoretical Physics (DTP), Division for Gender Equity in Physics (DGEP, formerly CEWIP) since 2020.

2011-pres. Winnipeg Institute for Theoretical Physics (WITP).

2012-2013 Canadian Prairie Theoretical Physics Network (CPTPN) (organization closed).

2003-2006 American Physical Society (APS).

1997 Phi Beta Kappa, academic honor society.

1997 Omicron Delta Kappa, leadership honor society.

1996 Sigma Pi Sigma, physics honor society.

1996 Pi Mu Epsilon, mathematics honor society.

Professional Service

2025 External examiner for graduate degree, McGill.

2019 **External grant referee** for Natural Sciences and Engineering Research Council of Canada.

2017 **External grant referee** for Scientific Foundation Ireland (Republic of Ireland).

2017 **External grant referee** for Research Foundation – Flanders (FWO) (Belgian science funding organization).

2017 **External grant referee** for CONICYT (Chilean science funding organization).

2015-2016 **Local organizing committee** for 2016 annual meeting of the Canadian Astronomical Society, hosted by UManitoba.

2015-2016 **National organizing committee** for 16th Canadian Conference on General Relativity and Relativistic Astrophysics (CCGRRA).

2015-pres. **Selection Commitee** for DTP/WITP P. R. Wallace Thesis Prize as WITP representative (2015, 2016, 2021-2023).

2013-2014 **Local organizing committee chair** for 15th CCGRRA.

2012-2024 **Director** (Dec 2012-Dec 2014, 2019-2022), **Past Director** (2015-2016, 2023-2024), **Director-Elect** (Jan 2017-Dec 2018) of the WITP.

2012-2024 Organizer of WITP Summer Symposium (at UWinnipeg 2012, 2016, 2019, 2022, 2024; at UManitoba 2013, 2017, 2023; online 2020, 2021).

2011 Co-organizer of McGill workshop *Dark Matter from Every Direction*, discussing theory of and experiments relating to dark matter.

2009-2010 **Local organizing committee** for international conference *Strong and Electroweak Matter* hosted by McGill University.

2008 **External grant referee** for the US National Science Foundation.

2008 Organizer of McGill workshop *3D SCFTs and Their Gravity Duals*, discussing recent developments in three-dimensional field theory dual to four-dimensional anti-de-Sitter spacetimes in string theory.

2008 **External grant referee** for the Netherlands Organisation for Scientific Research.

2007 Co-organizer of McGill workshop *Cosmology on the Landscape*, discussing cosmology in string theory and other higher-dimensional models.

2003-pres. **Peer referee** for *Canadian Journal of Physics*, *Classical and Quantum Gravity*, *EPL* (formerly *Europhysics Letters*), *European Physics Journal C*, *International Journal of Modern Physics A*, *Journal of High Energy Physics*, *Journal of Cosmology and Astroparticle Physics*, *Physical Review D*, *Physical Review Letters*, and *Physics Letters B*.

Public Lectures and Media Appearances

2025 Comments on provincial teacher certification changes, Winnipeg Free Press.

2024 "Winnipeg's Nobel Laureate: Physics 2019," Cornish Library, Winnipeg.

2024 Discussion of J. Peebles work and 2019 Nobel Prize for Winnipeg 150 anniversary, CTV Morning Live.

2023 *PROFile* interview, The Uniter, UWinnipeg newspaper.

2019-2020 "The Winnipeger's Guide to the 2019 Nobel Prize in Physics," Fred Douglas Place, UWinnipeg, Millenium Library (all Winnipeg).

2019 Comments on Nobel Prize in Physics 2019, Canadian Press.

2019 Comments on Nobel Prize in Physics 2019, National Post.

2019 "Black Holes: The Ultimate Quantum Computers?" Millenium Library (Winnipeg).

2018 Question & answer session on string theory shown in *How the Heavens Go* by Joseph Aragon, performed by Prairie Theatre Exchange (Winnipeg).

2016 "Talk Back" discussion of physics in *Constellations* by Nick Payne, performed by Theatre by the River (Winnipeg).

2016 *PROFile* interview, The Uniter, UWinnipeg newspaper.

2014 "Learning by Cosmosis" with Ken Freeman, Jayanne English, and Chris O'Dea, Tallest Poppy restaurant (Winnipeg).

2014 Nobel Prize in Physics 2014, CJOB radio morning news.

2014 Discussion of Stephen Hawking's comments on the Higgs boson, Charles Adler's broadcast, CJOB radio.

2014 "The Astounding Universe of String Theory," UManitoba *Dream Big* event (for Neil deGrasse Tyson visit).

2013 Dark matter research, with Gabriel Chernitsky, Jared Enns, and Nicholas Reid, *Dark Matter, Defined*, CKUW radio.

2013 Higgs boson discovery, CTV Winnipeg News.

2012-2016 "What is String Theory?" Millennium Library, Fred Douglas Place, Wellington Retirement Residence, Charleswood Senior Centre, Portsmouth Retirement Residence (all Winnipeg).

2011 "2011 Nobel Prize in Physics and the Accelerating Universe," UWinnipeg.

Conference and Meeting Participation

Presentation titles listed separately below

2023 *Strings 2023* hosted by PI as hybrid conference (attended online).

2022 *Hirosifest* at Caltech (attended online).

2021 *Applications of Quantum Information in QFT and Cosmology* hosted online by University of Lethbridge, AB. Session Chair.

2021 *String Pheno 2021* hosted online by Northeastern University, Boston, MA.

2021 *Strings 2021* hosted online by ICTP-SAIFR, São Paulo, Brazil.

2021 Annual CAP Congress online. **Invited Speaker**.

2020 *Tensor Networks: From Simulations to Holography III* hosted online by PI.

2020 *Strings 2020* hosted online by the University of Cape Town, South Africa.

2017 WITP Workshop. Organizer, Speaker, Session Chair.

2015 Annual CAP Congress at University of Alberta, AB. **Invited Speaker**, Session Chair.

2014 15th CCGRRA at UWinnipeg. **Organizer**, Speaker, Session Chair.

2014 *From the Renormalization Group to Quantum Gravity* at UCSB. Panelist.

2012 14th CCGRRA at Memorial University, NL. **Invited Plenary Speaker**. Session Chair.

2011 *Dark Matter from Every Direction* at McGill. Organizer, Speaker.

2010 *Cosmological Backreaction and IR Effects* at McGill.

2010 *Strong & Electroweak Matter* at McGill. **Organizer**.

2010 *AdS/CFT: Condensed Matter, Holographic QCD and Fluid Mechanics* at McGill.

2009 *Holography and Universality of Black Holes* at McGill.

2009 *Holographic Cosmology* at McGill.

2009 *Holographic Cosmology* at PI. Speaker.

2008 *AdS/CFT, Condensed Matter and QCD* at McGill.

2008 *3D SCFTs and Their Gravity Duals* at McGill. Organizer.

2008 *Santa Fe Cosmology Workshop* hosted by the Los Alamos National Laboratory theory group at Saint John's College, NM.

2008 PASCOS '08 *(Particles, Strings, & Cosmology)* at PI. Speaker.

2008 *Three Dimensional Quantum Gravity* at McGill.

2007 *Cosmology on the Landscape* at McGill. Organizer.

2006 *Singularity Resolution in String Theory* at McGill.

2005 *Supercosmology* at Aspen Center for Physics, CO. Speaker.

2004 APS Division of Particles and Fields Meeting at UC Riverside, CA. Speaker.

2002 *Strings 2002* at Cambridge University, UK. Poster presentation.

1998 191st American Astronomical Society meeting at Washington, DC. Poster presentation.

1996 North Carolina Acoustical Society meeting at North Carolina Zoo, NC. **Invited Speaker**.

Seminars, Colloquia, and Conference Presentations

2023 "String Thermo*dynamics*," Crete Center for Theoretical Physics

2022 "Dark Radiation vs Hagedorn Strings," McGill.

2021 "Holographic Complexity in Gravitational Collapse," 2021 CAP Congress online.

2021 "Quantum Information for Quantum Gravity for Undergraduates," *Prairie University Physics Seminar Series*, University of Lethbridge, University of Saskatchewan.

2020 "Dirac Branes for Dirichlet Branes," McGill.

2019 "Disentanging Brane & Flux Degrees of Freedom," PI.

2018 "To BH or Not To BH: Gravitational Stability of AdS and What That Means," UWinnipeg.

2018 "A new interpretation for the Dirac string," McGill, PI.

2018 "Phases of Gravitational Collapse in AdS," McGill, PI.

2017 "Gravitational Collapse in Anti-de Sitter Spacetime: An Introduction," WITP workshop, UManitoba.

2016 "Black Hole Formation in Anti-de Sitter Spacetime (And What It Means)," WITP seminar.

2015 "Dynamics of Gravitational Collapse in AdS Space-Time," 2015 CAP Congress hosted by University of Alberta.

2015 "Gravitational Collapse and Far-From-Equilibrium Dynamics in AdS/CFT," University of Alberta.

2014-2015 "Stringy Corrections from (Almost) Classical Supergravity," CCGRRA hosted by UWinnipeg, McGill, University of Alberta.

2013 "Not-So-Dark Matter," York University, University of North Dakota.

2012-2013 "Gamma Rays at 130 GeV and How They Might Come from Dark Matter," McGill, PI.

2012 "Warped Dimensional Reduction," McGill, CCGRRA hosted by Memorial University.

2011 "Metastable Dark Matter and 511 keV Gammas from the Galactic Center," *Dark Matter from Every Direction* at McGill.

2011 "Light from Dark Matter," San Francisco State University, University of Heidelberg, UWinnipeg, UManitoba.

2010 "Direct and Indirect Detection of Metastable Dark Matter," Caltech, UCSB, University of Toronto.

2010 "Warped Kaluza-Klein Dark Matter," Rencontres Théoriciennes (Paris Joint String Theory Meeting) hosted by CEA Saclay Institut de Physique Théorique.

2010 "Constraints on Extra-Dimensional Dark Matter," University of Cincinnati.

2010 "Dark Matter is Exciting!" University of Cincinnati.

2009	"Could Dark Matter Come from Extra Dimensions?" with Rebecca Danos, Annual Alumni Colloquium at WFU.
2009	"String Theory in the Universe," Annual Alumni Colloquium at WFU.
2009	"Warped Kaluza-Klein Dark Matter: Surveying the Landscape," University of Michigan.
2009	"Holography and Kaluza-Klein Dark Matter," *Holographic Cosmology* at PI.
2009	"A Tour of Flux Compactification Dynamics," University of Wisconsin.
2009	"An Inverted Mass Hierarchy for Exciting Dark Matter," PI, University of Wisconsin.
2008	"Top-Down Model Building for Cosmology," Carleton University.
2008	"Cosmic Compactification: Cosmology and the Importance of Dimensional Reduction," University of Massachusetts – Amherst, Massachusetts Institute of Technology (Joint Tufts/Harvard Center for Astrophysics/MIT Cosmology seminar).
2008	"Backreaction in Closed String Tachyon Condensation," PASCOS '08 at PI.
2008	"Entropy Modes at the End of Brane Inflation," McGill, University of Michigan.
2006	"Warped Spectroscopy," McGill.
2005	"AdS Strings with Torsion," Caltech.
2004-2005	"Stringy Effects During Inflation and Reheating," APS Division of Particles and Fields at UC Riverside, UC Berkeley, UCSB, Caltech, UC Los Angeles, Aspen Center for Physics, and Stanford University (several versions).
2003	"IIB Supergravity and Interpolating Supersymmetries," University of Southern California.
2003	"Just How (un)Stable is de Sitter Anyway?" Caltech.
2002	"BPS Strings in 3-Forms," UCSB, University of Southern California, UC San Diego.
2002	"Physics of $\mathcal{N} = 3$ Warped Compactifications," UCSB, Stanford University.
1996	"Detection of a Silent Submarine from Ambient Noise Field Fluctuations" with Joseph Gagnon, North Carolina Acoustical Society meeting at North Carolina Zoo.

Publications

Please note that the standard convention in high energy physics is to list authors in alphabetical order, but this is a very loose convention. At times, this order may be changed to reflect involvement in research or for other reasons. Caution should be used interpreting author order.

Ph.D. Thesis

A. R. Frey, "Warped strings: Self-dual flux and contemporary compactifications," arXiv:hep-th/0308156.

Conference Proceedings

M. E. Carrington, A. R. Frey and B. A. Meggison, "Phase transitions in anisotropic graphene," Int. J. Mod. Phys. A, doi:10.1142/S0217751X22400188 [arXiv:2206.10111 [cond-mat.mes-hall]], *refereed*.

A. R. Frey, "Effects of strings in inflation and reheating," APS Division of Particles and Fields 2004 Meeting Proceedings, Int. J. Mod. Phys. A **20**, 3438 (2005).

A. R. Frey, C. J. Lada, J. Alves, and S. Kenyon, "An infrared survey of protostars in the Perseus molecular cloud," Bulletin of the American Astronomical Society **29**, 1231 (1997).

Peer-Reviewed Papers

N. Agarwal, A. R. Frey and B. Underwood, "Toward an effective theory of the volume modulus," JHEP **01**, 136 (2026) [arXiv:2509.18419 [hep-th]].

A. R. Frey, M. P. Grehan and P. Singh, "Holographic complexity of the Klebanov-Strassler background," Phys. Rev. D **113**, no.2, 026008 (2026) [arXiv:2311.18804 [hep-th]].

A. R. Frey and R. Mahanta, "Dimensional reduction and Kähler metric for metric moduli in imaginary self-dual flux," JHEP **07**, 248 (2025) [arXiv:2501.08623 [hep-th]].

A. R. Frey, "Holographic complexity in string and M theory," Phys. Rev. D **111**, no.4, 046011 (2025) [arXiv:2410.21362 [hep-th]].

A. R. Frey, R. Mahanta, A. Maharana, F. Quevedo and G. Villa, "Gravitational waves from high temperature strings," JHEP **12**, 174 (2024) [arXiv:2408.13803 [hep-th]].

A. R. Frey, R. Mahanta, A. Maharana, F. Muia, F. Quevedo and G. Villa, "String thermodynamics in and out of equilibrium: Boltzmann equations and random walks," JHEP **03**, 112 (2024) [arXiv:2310.11494 [hep-th]].

J. Yang and A. R. Frey, "Complexity, scaling, and a phase transition," JHEP **09**, 029 (2023) [arXiv:2307.08229 [hep-th]].

M. E. Carrington, A. R. Frey and B. A. Meggison, "The effect of different 3-D QED vertex ansaetze on critical coupling," Phys. Rev. D **107**, no.5, 056012 (2023) [arXiv:2210.08108 [cond-mat.mes-hall]].

A. R. Frey, R. Mahanta and A. Maharana, "Dark Radiation and the Hagedorn Phase," Phys. Rev. D **105**, no.6, 066007 (2022) [arXiv:2108.03317 [hep-th]].

A. R. Frey, M. P. Grehan and M. Srivastava, "Complexity of Scalar Collapse in Anti-de Sitter Spacetime," JHEP **12**, 135 (2021) [arXiv:2110.09630 [hep-th]].

M. E. Carrington, A. R. Frey and B. A. Meggison, "Effect of anisotropy on phase transitions in graphene," Phys. Rev. B **102**, no.12, 125427 (2020) [arXiv:2006.04790 [cond-mat.mes-hall]].

A. R. Frey, "Dirac branes for Dirichlet branes: Supergravity actions," Phys. Rev. D **102**, no.4, 046017 (2020) [arXiv:1907.12755 [hep-th]].

B. Cownden, N. Deppe and A. R. Frey, "Phase diagram of stability for massive scalars in anti–de Sitter spacetime," Phys. Rev. D **102**, no.2, 026015 (2020) [arXiv:1711.00454 [hep-th]].

B. Cownden and A. R. Frey, "Variations on the Dirac string," Phys. Rev. D **98**, no. 10, 105013 (2018) [arXiv:1807.07401 [hep-th]].

B. Cownden, A. R. Frey, M. C. D. Marsh and B. Underwood, "Dimensional Reduction for D3-brane Moduli," JHEP **1612**, 139 (2016) [arXiv:1609.05904 [hep-th]].

N. Deppe, A. Kolly, A. R. Frey and G. Kunstatter, "Black Hole Formation in AdS Einstein-Gauss-Bonnet Gravity," JHEP **1610**, 087 (2016) [arXiv:1608.05402 [hep-th]].

N. Deppe and A. R. Frey, "Classes of Stable Initial Data for Massless and Massive Scalars in Anti-de Sitter Spacetime," JHEP **1512**, 004 (2015) [arXiv:1508.02709 [hep-th]].

N. Deppe, A. Kolly, A. Frey and G. Kunstatter, "Stability of Anti-de Sitter in Einstein Gauss Bonnet Gravity," Phys. Rev. Lett. **114**, 071102 (2015) [arXiv:1410.1869 [hep-th]].

J. M. Cline and A. R. Frey, "Consistency of dark matter interpretations of the 3.5 keV x-ray line," Phys. Rev. D **90**, no. 12, 123537 (2014) [arXiv:1410.7766 [astro-ph.CO]].

J. M. Cline and A. R. Frey, "Nonabelian dark matter models for 3.5 keV X-rays," JCAP **1410**, no. 10, 013 (2014) [arXiv:1408.0233 [hep-ph]].

A. R. Frey and J. Roberts, "The Dimensional Reduction and Kähler Metric of Forms In Flux and Warping," JHEP **1310**, 021 (2013) [arXiv:1308.0323 [hep-th]].

A. R. Frey and N. B. Reid, "Cosmic Microwave Background Constraints on Dark Matter Models of the Galactic Center 511 keV Signal," Phys. Rev. D **87**, 103508 (2013) [arXiv:1301.0819 [hep-ph]].

J. M. Cline, A. R. Frey and G. D. Moore, "Composite magnetic dark matter and the 130 GeV line," Phys. Rev. D **86**, 115013 (2012) [arXiv:1208.2685 [hep-ph]].

J. M. Cline and A. R. Frey, "Abelian dark matter models for 511 keV gamma rays and direct detection," Annalen Phys. **524**, 579-590 (2012) [arXiv:1204.1965 [hep-ph]].

R. J. Danos, A. R. Frey and Y. Wang, "Canny Algorithm: A New Estimator for Primordial Non-Gaussianities," Phys. Rev. D **86**, 043526 (2012) [arXiv:1108.2265 [astro-ph.CO]].

J. M. Cline and A. R. Frey, "Light dark matter versus astrophysical constraints," Phys. Lett. B **706**, 384 (2012) [arXiv:1109.4639 [hep-ph]].

J. M. Cline and A. R. Frey, "Minimal hidden sector models for CoGeNT/DAMA events," Phys. Rev. D **84**, 075003 (2011) [arXiv:1108.1391 [hep-ph]].

J. M. Cline, A. R. Frey and F. Chen, "Metastable dark matter mechanisms for INTEGRAL 511 keV γ rays and DAMA/CoGeNT events," Phys. Rev. D **83**, 083511 (2011) [arXiv:1008.1784 [hep-ph]].

F. Chen, J. M. Cline, A. Fradette, A. R. Frey, and C. Rabideau, "Exciting dark matter in the galactic center," Phys. Rev. D **81**, 043523 (2010) [arXiv:0911.2222 [hep-ph]].

A. R. Frey, R. J. Danos, and J. M. Cline, "Warped Kaluza-Klein Dark Matter," JHEP **0911**, 102 (2009) [arXiv:0908.1387 [hep-th]].

F. Chen, J. M. Cline, and A. R. Frey, "Nonabelian dark matter: models and constraints," Phys. Rev. D **80**, 083516 (2009) [arXiv:0907.4746 [hep-ph]].

R. H. Brandenberger, A. R. Frey, and L. C. Lorenz, "Entropy fluctuations in brane inflation models," Int. J. Mod. Phys. A **24**, 4327-4354 (2009) [arXiv:0712.2178 [hep-th]].

F. Chen, J. M. Cline, and A. R. Frey, "A new twist on excited dark matter: implications for INTEGRAL, PAMELA/ATIC/PPB-BETS, DAMA," Phys. Rev. D **79**, 063530 (2009) [arXiv:0901.4327 [hep-ph]].

A. R. Frey, G. Torroba, B. Underwood, and M. R. Douglas, "The universal Kaehler modulus in warped compactifications," JHEP **0901**, 036 (2009) [arXiv:0810.5768 [hep-th]].

A. R. Frey, "Backreaction in closed string tachyon condensation," JHEP **0808**, 053 (2008) [arXiv:0805.0570 [hep-th]].

R. J. Danos, A. R. Frey and R. H. Brandenberger, "Stabilizing moduli with thermal matter and nonperturbative effects," Phys. Rev. D **77**, 126009 (2008) [arXiv:0802.1557 [hep-th]].

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