

JUSTIN KHOURY

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EDUCATION

Princeton University	Princeton, NJ
Ph.D. in Physics	June 2002
McGill University	Montreal, Canada
B.Sc., Joint Honors in Mathematics and Physics	May 1998

POSITIONS

University of Pennsylvania	Philadelphia, PA
Professor of Physics and Astronomy	2017-Present
Assistant and Associate Professor of Physics and Astronomy	2009-2017
Perimeter Institute for Theoretical Physics	Waterloo, Canada
Faculty Member	2006-2009
Massachusetts Institute of Technology	Cambridge, MA
Postdoctoral Fellow at the Center for Theoretical Physics	2004-2006
Columbia University	New York, NY
Postdoctoral Fellow at the Institute for String Cosmology and Astroparticle Physics	2002-2004

AWARDS AND HONORS

- Lindback Award for Distinguished Teaching (2019)¹
- Buchalter Cosmology Prize (2017)²
- W. M. Keck Foundation Science and Engineering Grant (2017-2019)
- Kaufman Foundation New Initiative Grant (2015-2016)
- Penn Fellow (2014-2016)
- NSF CAREER Award (2012-2017)
- Alfred P. Sloan Research Fellow (2010-2012)

CURRENT SUPPORT

Department of Energy (co-I)	2021-2025
<i>University of Pennsylvania Theoretical Program</i>	\$346,500 per investigator over 4 years
Simons Foundation, Targeted Grant (co-PI)	2019-2022
<i>New Theoretical Avenues for the Early Universe</i>	\$320,000 over 2 years
NASA ATP and Foundations Science (PI)	2021-2022
<i>Astrophysical Imprints of A Richer Dark Sector (COVID extension)</i>	\$100,256 over 1 year

¹The Lindback Award for Distinguished Teaching is the highest teaching honor awarded by the University.

²The Buchalter Prize is awarded annually for a paper that seeks to stimulate ground-breaking theoretical, observational, or experimental work in cosmology that has the potential to produce a breakthrough advance in our understanding.

PREVIOUS SUPPORT

NASA ATP and Foundations Science (PI) <i>Astrophysical Imprints of A Richer Dark Sector</i>	2018-2020 \$444,199 over 3 years
W. M. Keck Foundation Science and Engineering Grant (co-PI) <i>Unveiling the Forces of Dark Matter and Dark Energy</i>	2017-2019 \$237,868 over 3 years
Department of Energy (co-I) <i>University of Pennsylvania Theoretical Program</i>	2018-2021 \$332,600 per investigator over 3 years
Kaufman New Initiative Grant (PI) <i>New Approach to Dark Matter</i>	2015-2018 \$300,000 over 2 years
Department of Energy (PI) <i>New Ideas for the Dark Sector and the Early Universe</i>	2017-2018 \$102,000 over 1 year
NSF PHY CAREER (PI) <i>The Fundamental Physics of the Invisible and the Very Early Universe</i>	2012-2017 \$400,000 over 5 years
NASA ATP and Foundations Science (co-I) <i>Discerning the Details of the Cosmic Dark Sector</i>	2014-2017 \$451,968 over 3 years
NASA ATP and Foundations Science (co-I) <i>Interactions in the Dark Sector of Cosmology</i>	2011-2014 \$407,063 over 3 years
NSF PHY 1001296 (Co-PI) <i>The Particle Physics and Cosmology of Supersymmetry and String Theory</i>	2010-2013 \$60,000 over 3 years
Alfred P. Sloan Research Fellowship <i>Unveiling Dark Energy and The Very Early Universe</i>	2010-2012 \$50,000 over 2 years

TEACHING

- **PHYS 411**, Introduction to Quantum Mechanics (Fall 2009, 2010).
- **PHYS 503**, General Relativity (Fall 2014-2016, 2020-2022).
- **PHYS 505**, Intro to Cosmology (Spring 2021, 2023).
- **PHYS 517**, Particle Cosmology (Spring 2009, 2011).
- **PHYS 531**, Quantum Mechanics I (Fall 2011-2013, 2017-2019).
- **PHYS 532**, Quantum Mechanics II (Spring 2012-2014, 2018-2020).

GRADUATE STUDENT MENTORING

- Co-supervising (with Prof. Bhuvnesh Jain) 3rd-year Ph.D. student Minsu Park (2020-Present). Mr. Park is currently on a 2-year hiatus to do his military service in Korea.
- Supervised Ph.D. student Guram Kartvelishvili (2016-2022).
- Supervised Ph.D. student Anushrut Sharma (2015-2021).
- Supervised Ph.D. student Benjamin Elder (2013-2017), now postdoc at University of Hawaii.
- Supervised Ph.D. student Austin Joyce (2009-2013), now Assistant Prof. at University of Chicago.
- Supervised Ph.D. student Godfrey Miller (2009-2013), now at Princeton Consultants Inc.

UNDERGRADUATE STUDENT MENTORING

- Supervised Nathaniel Watkins on a senior thesis project pertaining to search optimization on the string

theory landscape (2020-2022).

- Supervised senior theses of A. Levy and A. Matas (2010-11). This work on symmetron cosmology has led to a paper published in Phys. Rev. D.

POSTDOCTORAL MENTORING

- Co-mentoring Penn postdoctoral fellows Drs. Valerio De Luca, Tanvi Karval, Meng-Xiang Lin, and Sam Wong. I have collaborated with all four postdocs on various projects.
- Co-mentored Penn postdoctoral fellows Dr. L. Berezhiani (2012-2015, now Scientific Staff at Max Planck Institute for Physics, Munich), Dr. Y.-Z. Chu (2011-2014, now associate prof. at National Central University in Taoyuan, Taiwan), Dr. K. Hinterbichler (2009-2012, now junior faculty at Case Western U.), Dr. V. Miranda (2015-2018, now junior faculty at Stony Brook), Dr. R. Penco (2016-2018, now associate prof. at Carnegie Mellon), Dr. M. Raveri (2019-2022, now junior faculty at Genoa U.), Dr. J. Sakstein (2016-2020, now junior faculty at U. Hawaii) Dr. A. Solomon (2015-2018) and Dr. D. Wesley (2009-2010).
- Recruited and mentored 8 postdoctoral researchers in cosmology at the Perimeter Institute. Among these, six have moved on to faculty positions: N. Afshordi (Perimeter/U. Waterloo), C. de Rham (Imperial), J. Giblin (Kenyon College), S. Hofmann (LMU, Munich), C. Skordis (Prague) and A. Tolley (Imperial).

DEPARTMENT AND UNIVERSITY SERVICE

- Served on the Elon Musk Public Lecture Series organizing committee (2021-2024).
- Served on selection committee for the President's Innovation Prize (2019).
- Associate Chair for Undergraduate Studies (2014-2018).
- Served on the Planning Committee (2014-2018).
- Served on the Space Committee (2014-2015).
- Chaired Committee for Instruction in the Physics Sophomore Courses (2015-2016).
- Chaired Committee for Instruction in the Physics Introductory Courses (Spring 2014).
- Served on a committee for the selection of students that Penn endorsed for the Goldwater Scholarship. The Goldwater funds top flight research scholars in math, science, and engineering (Spring 2014).
- Serving on the Physics and Astronomy Colloquium Committee (2012-2014).
- Chair of organizing committee for 3rd Elon Musk Public Lecture event by Dr. Wendy Freedman, Director of the Carnegie Observatories (April 2013). This event was co-hosted by the Center for Particle Cosmology, the Department of Physics and Astronomy and Penn Women's Studies. The program was supported in part by my NSF CAREER award. I successfully applied for a \$2500 grant from the Fund to Encourage Women (FEW) of the Trustees' Council of Penn Women to support this event.
- Served on the Elon Musk Public Lecture Series organizing committee (2011). The public lecture was delivered by Prof. Frank Wilczek (MIT) on the Penn campus on November 4, 2011.
- Served on Graduate Admissions Committee (2010-11).
- Served as workshop chair for the Inaugural Workshop for Penn's Center for Particle Cosmology, held at Penn on December 11-14, 2009. This meeting brought together 20 world-renowned researchers to discuss some of the central questions of modern cosmology. Organized a public lecture event by Prof. Paul J. Steinhardt (Princeton) in conjunction with the conference.

OUTREACH EXPERIENCE

- Panelist (remote), Perimeter Institute Career Event (Dec. 2021). This event aimed to offer insights about

life as a faculty member to postdocs and graduate students in theoretical physics.

- Live Session for World Science Scholars (Sept. 2019).
- Presented at the Philomathean society, U. Penn (Nov. 2018).
- Public lecture, The Planetary Society, Philadelphia, PA (June 2018).
- Public lecturer, World Science Festival University for a Day, New York City, NY (June 2016).
- Panelist, “Shaking Up the Dark Universe”, World Science Festival (June 2016).
- Organized the first two Annual Penn’s Women in Physics Public Lecture (Nov. 2015 and Dec. 2016), delivered respectively by Prof. Mildred Dresselhaus, the Institute Professor in Physics and Electrical Engineering at MIT, and Prof. Alessandra Buonanno (Max Planck), director of the Astrophysical and Cosmological Relativity department of the Max Planck Institute and a lead theorist in the Laser Interferometer Gravitational-Wave Observatory (LIGO) collaboration.
- Co-organized the 3rd Elon Musk Public Lecture event by Dr. Wendy Freedman, Director of the Carnegie Observatories. This event was co-hosted by the Center for Particle Cosmology, the Department of Physics and Astronomy and Penn Women’s Studies (April 2013).
- Co-organized the 2nd annual Elon Musk Public Lecture event by Nobel Laureate F. Wilczek (MIT) held at Penn (Nov. 2011).
- Organized the inaugural Elon Musk Public Lecture event by Prof. Paul J. Steinhardt (Princeton) as part of the Inaugural Workshop for Penn’s Center for Particle Cosmology (Penn, Dec. 2009).
- Co-organized public lecture events by B. Greene (Columbia), R. Kolb (Chicago), J. Levin (Columbia) and F. Wilczek (MIT) at the Perimeter Institute (2006-2008).
- Lectured at the Summer School on Strings, Gravity & Cosmology (University of British Columbia, 2006).
- Lectured at the International Summer School for Young Physicists (Perimeter, 2006 & 2007).
- Lectured at the Einstein Plus conference for high school teachers (Perimeter, Summer 2006).

PROFESSIONAL SERVICE

- Panelist for Department of Energy Theory comparative reviews (March 2023).
- Judge, Buchalter Cosmology Prize (2020-2022).
- Co-editor at Annals of Physics, Elsevier (Jan. 2013-Dec 2021).
- Reviewer for National Science Foundation, Mathematical and Physical Sciences Ascending Postdoctoral Research Fellowships (2022).
- Reviewer for Department of Energy University Theory reviews (Feb. 2020).
- Panelist for Department of Energy Laboratory Theory reviews (July 2018).
- Panelist for NASA’s Astrophysics Theory Program (2011).
- Reviewer for Department of Energy Early Career Award grant applications (2016-Present).
- Reviewer for National Science Foundation grant applications, Physics division (2010-Present).
- Reviewer for Research Corporation for Science Advancement proposals (2011).
- Reviewer for the Netherlands’ Organization for Scientific Research (2010).
- Referee for various scientific journals, including Physical Review Letters, Physical Review D, The Astrophysical Journal, Classical and Quantum Gravity, Journal of Cosmology and Astroparticle Physics, and General Relativity & Gravitation.

RECENT INVITED TALKS AND COLLOQUIA

1. Invited speaker, “Correlators in Cortona” workshop, Palazzone di Cortona, Tuscany, Italy (September 2023).
2. Invited speaker, “Ending Inflation & the Hot Big Bang” conference, Simons Center for Geometry and Physics, Stony Brook University, NY (June 2023).
3. Invited speaker, “Gravity and Beyond” workshop, University of Illinois, Urbana-Champaign, IL (May 2023).
4. Invited participant, “Cosmic Tensions: Past and Future” workshop, PDT Partners, New York, NY (May 2023).
5. Invited plenary speaker, “Testing Gravity 2023” conference, Simon Fraser University, Vancouver, BC (January 2023).
6. Invited seminar speaker, LBL/Berkeley Theory Group seminar series, University of Berkeley, CA (May 2022).
7. Invited seminar speaker, High Energy Theory seminars, University of Washington, Seattle, WA (May 2022).
8. Invited seminar speaker (remote), Theory seminar series, Imperial College London, UK (May 2022).
9. Invited speaker, Simons Symposium on Origins of the Universe, Simons Foundation, Gleneagles Hotel, Scotland (April 2022).
10. Invited seminar speaker (remote), CERN BSM Forum, CERN, Geneva, Switzerland (March 2022).
11. Invited plenary speaker, 2022 Rencontres de Moriond, La Thuile, Italy (January 2022 — Canceled participation because of Omicron wave).
12. Invited speaker (remote), Colloque Pascal 2022, Institut d’Astrophysique de Paris, France (November 2021).
13. Invited lecturer (remote), Les Houches Summer School on Dark Matter 2021, Les Houches, France (July 2021).
14. Invited speaker (remote), Amsterdam Theoretical Cosmology meeting, University of Amsterdam, Netherlands (June 2021).
15. Invited seminar speaker (remote), Cosmology Lunch Seminar, University of Cambridge, UK (June 2021).
16. Invited seminar speaker (remote), Quantum Aspects of Space-Time and Matter (QASTM) seminar, Max Planck Institute for Gravitational Physics, Potsdam, Germany (May 2021).
17. Invited speaker, “Observing the Big Bang” conference, Amsterdam, Netherlands (July 2020 — Postponed).

18. Invited plenary speaker, String Pheno 2020 Conference, Boston, MA (June 2020 — Postponed).
19. **Colloquium speaker**, Perimeter Institute for Theoretical Physics, Waterloo, Canada (May 2020 — Postponed).
20. Invited plenary speaker, 2020 Rencontres de Moriond, La Thuile, Italy (March 2020 – Canceled).
21. Invited seminar speaker, Joint MIT/Tufts Cosmology seminar series, MIT, Cambridge, MA (Feb. 2020).
22. Invited seminar speaker, Particle theory seminar series, Harvard University, Cambridge, MA (Dec. 2019).
23. Invited panelist, “Cosmic Controversies” conference, University of Chicago, Chicago, IL (Oct. 2019).
24. Invited seminar speaker, Theory seminar series, McGill University, McGill, Canada (Sept. 2019).
25. Invited seminar speaker, Particle Physics seminar series, University of Barcelona, Barcelona, Spain (July 2019).
26. Invited plenary speaker, Gordon Research Conference (GRC) on String Theory and Cosmology, Castelldefels, Spain (June 2019).
27. Invited seminar speaker, Astronomy–Particle Physics–Experimental Physics–Cosmology seminar, Kavli Institute for the Physics and Mathematics of the Universe, Tokyo, Japan (May 2019).
28. Invited seminar speaker, Theory seminar series, SLAC National Accelerator Laboratory, Menlo Park, CA (May 2019).
29. Invited seminar speaker, Particle theory seminar series, UC Irvine, Irvine, CA (May 2019).
30. Invited seminar speaker, Theory Seminar series, Columbia University, New York, NY (April 2019).
31. Invited seminar speaker, Pheno and Vino seminar series, Princeton University, Princeton, NJ (April 2019).
32. Invited plenary speaker, “Universal Themes of Bose-Einstein Condensation” conference, University of Pittsburgh, Pittsburgh, PA (April 2019).
33. Invited speaker, “Novel Ideas for Dark Matter 2019” workshop, Princeton University, Princeton, NJ (Jan 2019).
34. Invited plenary speaker, “Testing Gravity 2019” conference, Simon Fraser University, Vancouver, BC (January 2019).
35. Invited plenary speaker, Gordon Research Conference (GRC) on Physics Research and Education, Bryant University, Smithfield, RI (June 2018).

36. Invited plenary speaker, “Particles, Strings and Cosmology” (PASCOS) conference, Case Western Reserve University, Cleveland, OH (June 2018).
37. Invited plenary speaker, 2018 Rencontres de Moriond, La Thuile, Italy (March 2018).
38. Invited seminar speaker, Astrophysics Seminar Series, Carnegie Mellon University, Pittsburgh, MA (December 2017).
39. Invited seminar speaker, High Energy Theory Seminar Series, Tufts University, Boston, MA (October 2017).
40. Invited plenary speaker, “Dwarf Galaxies on the Shoulders of Giants” workshop, Case Western Reserve University, Cleveland, OH (June 2017).
41. Invited seminar speaker, Cosmology/High Energy Theory Seminar Series, Johns Hopkins University, Baltimore, MD (May 2017).
42. **Colloquium** speaker, Kieval Lecturer, Department of Physics, Cornell University, Ithaca, NY (May 2017).
43. Invited speaker, “Beyond WIMPs: from Theory to Detection”, Simons Center for Geometry and Physics, Stony Brook University, NY (March 2017).
44. **Colloquium** speaker, Department of Astrophysics, Rochester Institute of Technology, Rochester, NY (March 2017).
45. **Colloquium** speaker, Department of Physics, Caltech, Pasadena, CA (March 2017).
46. Invited seminar speaker, Theory Seminar Series, New York University, New York, NY (March 2017).
47. Invited plenary speaker, “Testing Gravity 2017” conference, Simon Fraser University, Vancouver, BC (January 2017).
48. Invited plenary speaker, “2017 Higgs Symposium: New Directions in Theoretical Physics 2”, Edinburgh University, Edinburgh, Scotland (January 2017).
49. Invited seminar speaker, Center for Neutrino Physics Seminar, Virginia Tech, Blacksburg, VA (November 2016).
50. **Colloquium** speaker, Department of Physics, McGill University, Montreal, Canada (October 2016).
51. Invited speaker, “Workshop on neutron, atomic and molecular interferometry”, Joint Quantum Institute, University of Maryland, College Park, MD (September 2016).
52. Invited plenary speaker, “Cosmological Frontiers 2016” conference, Perimeter Institute for Theoretical Physics, Waterloo, Ontario (June 2016).
53. Invited speaker, “Rethinking Dark Matter” exploratory seminar, Radcliffe Institute, Harvard University, Cambridge, MA (April 2016).

54. Invited plenary speaker, April Meeting 2016 of the American Physical Society, Salt Lake City, Utah (April 2016).
55. **Colloquium** speaker, Department of Physics, University of Cincinnati, Cincinnati, OH (March 2016).
56. Invited seminar speaker, Cosmology Seminar Series, Case Western University, Cleveland, OH (March 2016).
57. **Colloquium** speaker, Department of Astronomy and Astrophysics, University of Chicago, Chicago, IL (March 2016).
58. Invited seminar speaker, Particle Astrophysics Seminar Series, Fermilab, Batavia, IL (March 2016).
59. Invited plenary speaker, “Dark Side of the Universe” conference, Kyoto University, Kyoto, Japan (December 2015).
60. Invited lecturer, First ICTP Advanced School on Cosmology, ICTP, Trieste, Italy (May 2015).
61. Invited seminar speaker, Particle Physics/Cosmology Seminar Series, University of Delaware, Newark, DE (April 2015).
62. Invited speaker, Workshop on “Superluminality in Effective Field Theory”, Perimeter Institute, Waterloo, Canada (April 2015).
63. Invited plenary speaker, 2015 Rencontres de Moriond, La Thuile, Italy (March 2015).
64. Invited seminar speaker, Joint Duke/UNC String Theory Seminar Series, North Carolina University, Chapel Hill, NC (March 2015).
65. Invited speaker, Gravity Group Seminars, Princeton University, Princeton, NJ (November 2014).
66. Invited speaker, workshop on “Large Angle/Scale Anomalies”, Case Western Reserve University, Cleveland, OH (September 2014).
67. Invited plenary speaker, COSMO 2014 conference, U. Chicago, Chicago, IL (August 2014).
68. Invited speaker, workshop on “Status and Future of Inflationary Theory”, U. Chicago, Chicago, IL (August 2014).
69. Invited lecturer, ICTP summer school on Cosmology, International Centre for Theoretical Physics, Trieste, Italy (July 2014).
70. Invited seminar speaker, Particle Theory Seminar Series, Harvard University, Cambridge, MA (May 2014).
71. **Colloquium** speaker, Department of Physics, UC Davis, Davis, CA (March 2014).

72. Invited speaker, Workshop on Non-Gaussianities, Princeton University, Princeton, NJ (January 2014).
73. Invited speaker, Virginia-DC-Maryland meeting, U. Virginia, Charlottesville, VA (November 2013).
74. Invited plenary, “The Return of de Sitter” conference, Max Planck Institute of Astrophysics, Munich, Germany (October 2013).
75. Invited plenary speaker, “Cosmology After Planck workshop” conference, U. Michigan, Ann Arbor, MI (September 2013).
76. Invited plenary speaker, “Tales of Lambda” conference, University of Nottingham, Nottingham, UK (July 2013).
77. Invited lecturer, Les Houches Summer School, Les Houches, France (July 2013).
78. Invited speaker at the “Inflation and Cosmic Frontiers Conference”, UC Davis, Davis, CA (May 2013).
79. **Colloquium** speaker, Institute for Gravitation and the Cosmos, Penn State University, University Park, PA (February 2013).
80. Invited speaker at conference “Which Space-Times are Forbidden?”, Arizona State University, Tempe, AZ (January 2013).
81. Seminar speaker, High Energy Theory Seminar Series, Johns Hopkins University, Baltimore, MD (November 2012).
82. **Colloquium** speaker, Department of Physics, Columbia University, New York, NY (October 2012).
83. Seminar speaker, Theory Seminar Series, Washington University in St-Louis, St-Louis, MO (October 2012).
84. Invited speaker at the “Workshop on Cosmic Acceleration”, Carnegie Mellon University, Pittsburgh, PA (August 2012).
85. Invited speaker at the conference “The quest for Dark Energy: where theory meets simulations”, Ringberg Castle, Ringberg, Germany (June 2012).
86. Invited speaker at the 17th Itzykson meeting on Dark Energy and Modified Gravity, CEA Saclay, France (June 2012).
87. Plenary speaker at the 7th Sackler Conference in Theoretical Astrophysics, Harvard University, Cambridge, MA (May 2012).
88. Seminar speaker, Astronomy Department, Carnegie Institution of Washington, Washington, DC (May 2012).
89. Seminar speaker, High Energy Theory Seminar Series, Cornell University, Ithaca, NY (April 2012).

90. Seminar speaker, High Energy Theory Seminar Series, UC Berkeley, Berkeley, CA (April 2012).
91. **Colloquium** speaker, Department of Physics, University of Illinois at Urbana-Champaign, Urbana, IL (March 2012).
92. Seminar speaker, Canadian Institute for Theoretical Astrophysics, University of Toronto, Toronto, Canada (February 2012).
93. **Colloquium** speaker, Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA (December 2011).
94. Invited speaker at the “Pre-Planckian Inflation” conference, University of Minnesota, Minneapolis, MN (October 2011).
95. **Colloquium** speaker, Department of Physics, Arizona State University, Tempe, AZ (September 2011).
96. Seminar speaker, Theory Seminar Series, McGill University, Montreal, QC (July 2011).
97. Plenary speaker at “Challenges for Early Universe Cosmology” conference, Perimeter Institute for Theoretical Physics, Waterloo, Canada (July 2011).
98. Invited speaker at the “Primordial non-Gaussianity: Theory Confronts Observations”, University of Michigan, Ann Arbor, MI (May 2011).
99. Invited speaker at the “Gravity Workshop”, Case Western Reserve University, Cleveland, OH (May 2011).
100. Invited speaker at the “Aspects of Inflation” workshop, Mitchell Institute, Texas A&M, College Station, TX (April 2011).
101. Seminar speaker, High Energy Theory Seminar Series, University of Texas, Austin, TX (April 2011).
102. Plenary speaker at “The Return of de Sitter” conference, NORDITA, Stockholm, Sweden (March 2011).
103. Seminar speaker, High Energy Theory Seminar Series, New York University, New York, NY (Jan. 2011).
104. Seminar speaker, Canadian Institute for Theoretical Astrophysics, University of Toronto, Toronto, Canada (Nov. 2010).
105. Seminar speaker, Cosmology Seminar Series, Perimeter Institute for Theoretical Physics, Waterloo, Canada (Nov. 2010).
106. Invited speaker at the “Non-Thermal Cosmological Histories of the Universe” conference, University of Michigan, Ann Arbor, MI (October 2010).
107. **Colloquium** speaker, Department of Physics, Yale University, New Haven, CT (Sept. 2010).

Publications in Peer-Reviewed/Refereed Journals

- [1] V. De Luca and J. Khoury, “Superfluid Dark Matter around Black Holes,” [arXiv:2302.10286 [astro-ph.CO]], under review in JCAP.
- [2] L. Berezhiani, G. Cintia and J. Khoury, “Thermalization, Fragmentation and Tidal Disruption: The Complex Galactic Dynamics of Dark Matter Superfluidity,” [arXiv:2212.10577 [astro-ph.CO]], under review in Phys. Rev. D.
- [3] V. De Luca, J. Khoury and S. S. C. Wong, “Implications of the Weak Gravity Conjecture for Tidal Love Numbers of Black Holes,” [arXiv:2211.14325 [hep-th]], under review in JCAP.
- [4] J. Khoury, T. Noumi, M. Trodden and S. S. C. Wong, “Stability of Hairy Black Holes in Shift-Symmetric Scalar-Tensor Theories via the Effective Field Theory Approach,” [arXiv:2208.02823 [hep-th]], under review in JCAP.
- [5] J. Khoury and S. S. C. Wong, “Bayesian Reasoning in Eternal Inflation: A Solution to the Measure Problem,” [arXiv:2205.11524 [hep-th]], under review in Phys. Rev. D.
- [6] A. Sharma, G. Kartvelishvili and J. Khoury, “Finite temperature description of an interacting Bose gas,” Phys. Rev. D **106**, no.4, 045025 (2022) [arXiv:2204.02423 [hep-th]].
- [7] J. Khoury, “Dark Matter Superfluidity,” Contribution to Les Houches summer school on Dark Matter, SciPost Phys. Lect. Notes 42 (2022) [arXiv:2109.10928 [astro-ph.CO]].
- [8] J. Khoury and T. Steingasser, “Gauge hierarchy from electroweak vacuum metastability,” Phys. Rev. D **105**, no.5, 055031 (2022) [arXiv:2108.09315 [hep-ph]].
- [9] T. Karwal, M. Raveri, B. Jain, J. Khoury and M. Trodden, “Chameleon early dark energy and the Hubble tension,” Phys. Rev. D **105**, no.6, 063535 (2022) [arXiv:2106.13290 [astro-ph.CO]].
- [10] J. Khoury and S. S. C. Wong, “Early-Time Measure in Eternal Inflation,” JCAP **05**, 031 (2022) [arXiv:2106.12590 [hep-th]].
- [11] J. Khoury, M. Trodden and S. S. C. Wong, “Existence and instability of hairy black holes in shift-symmetric Horndeski theories,” JCAP **11**, 044 (2020) [arXiv:2007.01320 [astro-ph.CO]].
- [12] G. Kartvelishvili, J. Khoury and A. Sharma, “The Self-Organized Critical Multiverse,” JCAP **02**, 028 (2021) [arXiv:2003.12594 [hep-th]].
- [13] B. Famaey, J. Khoury, R. Penco and A. Sharma, “Baryon-Interacting Dark Matter: heating dark matter and the emergence of galaxy scaling relations,” JCAP **06**, 025 (2020) [arXiv:1912.07626 [astro-ph.CO]].
- [14] J. Khoury, “Accessibility Measure for Eternal Inflation: Dynamical Criticality and Higgs Metastability,” JCAP **06**, 009 (2021) [arXiv:1912.06706 [hep-th]].
- [15] J. Khoury and O. Parrikar, “Search Optimization, Funnel Topography, and Dynamical Criticality on the String Landscape,” JCAP **12**, 014 (2019) [arXiv:1907.07693 [hep-th]].
- [16] L. Berezhiani, B. Elder and J. Khoury, “Dynamical Friction in Superfluids,” JCAP **1910**, no. 10, 074 (2019) [arXiv:1905.09297 [hep-ph]].
- [17] L. Berezhiani and J. Khoury, “Emergent long-range interactions in Bose-Einstein Condensates,” Phys. Rev. D **99**, no. 7, 076003 (2019) [arXiv:1812.09332 [hep-th]].

- [18] E. G. M. Ferreira, G. Franzmann, J. Khoury and R. Brandenberger, “Unified Superfluid Dark Sector,” *JCAP* **1908**, 027 (2019) [arXiv:1810.09474 [astro-ph.CO]].
- [19] A. Sharma, J. Khoury and T. Lubensky, “The Equation of State of Dark Matter Superfluids,” *JCAP* **1905**, 054 (2019) [arXiv:1809.08286 [hep-th]].
- [20] J. Khoury, J. Sakstein and A. R. Solomon, “Superfluids and the Cosmological Constant Problem,” *JCAP* **1808**, no. 08, 024 (2018) [arXiv:1805.05937 [hep-th]].
- [21] B. Famaey, J. Khoury and R. Penco, “Emergence of the mass discrepancy-acceleration relation from dark matter-baryon interactions,” *JCAP* **1803**, no. 03, 038 (2018) [arXiv:1712.01316 [astro-ph.CO]].
- [22] L. Berezhiani, B. Famaey and J. Khoury, “Phenomenological consequences of superfluid dark matter with baryon-phonon coupling,” *JCAP* **1809**, no. 09, 021 (2018) [arXiv:1711.05748 [astro-ph.CO]].
- [23] M. Jaffe, P. Haslinger, V. Xu, P. Hamilton, A. Upadhye, B. Elder, J. Khoury and H. Müller, “Testing sub-gravitational forces on atoms from a miniature, in-vacuum source mass,” *Nature Phys.* **13**, 938 (2017) [arXiv:1612.05171 [physics.atom-ph]].
- [24] L. Berezhiani, J. Khoury and J. Wang, “A Universe Without Dark Energy: Cosmic Acceleration from Dark Matter-Baryon Interactions,” *Phys. Rev. D* **95**, no. 12, 123530 (2017) [arXiv:1612.00453 [hep-th]].
- [25] A. Hodson, H. Zhao, J. Khoury and B. Famaey, “Galaxy Clusters in the Context of Superfluid Dark Matter,” *Astron. Astrophys.* **607**, A108 (2017) [arXiv:1611.05876 [astro-ph.CO]].
- [26] K. Hinterbichler, A. Joyce and J. Khoury, “Inflation in Flatland,” *Journal of Cosmological and Astroparticle Physics* **1701**, no. 01, 044 (2017) [arXiv:1609.09497 [hep-th]].
- [27] B. Elder, J. Khoury, P. Haslinger, M. Jaffe, H. Müller and P. Hamilton, “Chameleon Dark Energy and Atom Interferometry,” *Physical Review D* **94**, no. 4, 044051 (2016) [arXiv:1603.06587 [astro-ph.CO]].
- [28] J. Khoury, “Another Path for the Emergence of Modified Galactic Dynamics from Dark Matter Superfluidity,” *Physical Review D* **93**, no. 10, 103533 (2016) [arXiv:1602.05961 [astro-ph.CO]].
- [29] L. Berezhiani and J. Khoury, “Theory of dark matter superfluidity,” *Physical Review D* **92**, 103510 (2015) [arXiv:1507.01019 [astro-ph.CO]].
- [30] L. Berezhiani and J. Khoury, “Dark Matter Superfluidity and Galactic Dynamics,” *Physics Letters B* **753**, 639 (2016) [arXiv:1506.07877 [astro-ph.CO]].
- [31] P. Hamilton, M. Jaffe, P. Haslinger, Q. Simmons, H. Mueller and J. Khoury, “Atom-interferometry constraints on dark energy,” *Science* **349**, 849 (2015) [arXiv:1502.03888 [physics.atom-ph]].
- [32] F. Niedermann, R. Schneider, S. Hofmann and J. Khoury, “Universe as a cosmic string,” *Physical Review D* **91**, no. 2, 024002 (2015) [arXiv:1410.0700 [gr-qc]].
- [33] A. Joyce, J. Khoury and M. Simonović, “Multiple Soft Limits of Cosmological Correlation Functions,” *Journal of Cosmological and Astroparticle Physics* **1501**, no. 01, 012 (2015) [arXiv:1409.6318 [hep-th]].
- [34] J. Khoury, “Alternative to particle dark matter,” *Physical Review D* **91**, no. 2, 024022 (2015) [arXiv:1409.0012 [hep-th]].
- [35] A. Joyce, B. Jain, J. Khoury and M. Trodden, “Beyond the Cosmological Standard Model,” *Physics Reports* **568**, 1 (2015) [arXiv:1407.0059 [astro-ph.CO]].

- [36] L. Berezhiani and J. Khoury, ‘On the Initial State and Consistency Relations,’ *Journal of Cosmological and Astroparticle Physics* **1409**, 018 (2014) [arXiv:1406.2689 [hep-th]].
- [37] B. Elder, A. Joyce, J. Khoury and A. J. Tolley, ‘Positive energy theorem for $P(X, \phi)$ theories,’ *Physical Review D* **91**, no. 6, 064002 (2015) [arXiv:1405.7696 [hep-th]].
- [38] J. Khoury, G. E. J. Miller and A. J. Tolley, ‘How General Relativity and Lorentz Covariance Arise from the Spatially Covariant Effective Field Theory of the Transverse, Traceless Graviton,’ *International Journal of Modern Physics D* **23**, no. 12, 1442012 (2014) [arXiv:1405.5219 [gr-qc]].
- [39] C. Burrage and J. Khoury, ‘Screening of scalar fields in Dirac-Born-Infeld theory,’ *Physical Review D* **90**, no. 2, 024001 (2014) [arXiv:1403.6120 [hep-th]].
- [40] L. Berezhiani, J. Khoury and J. Wang, ‘Non-Trivial Checks of Novel Consistency Relations,’ *Journal of Cosmological and Astroparticle Physics* **1406**, 056 (2014) [arXiv:1401.7991 [hep-th]].
- [41] B. Elder, A. Joyce and J. Khoury, ‘From Satisfying to Violating the Null Energy Condition,’ *Physical Review D* **89**, no. 4, 044027 (2014) [arXiv:1311.5889 [hep-th]].
- [42] L. Berezhiani and J. Khoury, ‘Slavnov-Taylor Identities for Primordial Perturbations,’ *Journal of Cosmological and Astroparticle Physics* **1402**, 003 (2014) [arXiv:1309.4461 [hep-th]].
- [43] J. Khoury, ‘Chameleon Field Theories,’ *Classical and Quantum Gravity* **30**, 214004 (2013) [arXiv:1306.4326 [astro-ph.CO]].
- [44] J. Khoury, G. E. J. Miller and A. J. Tolley, ‘On the Origin of Gravitational Lorentz Covariance,’ *Classical and Quantum Gravity* **31**, 135011 (2014) [arXiv:1305.0822 [hep-th]].
- [45] K. Hinterbichler, L. Hui and J. Khoury, ‘An Infinite Set of Ward Identities for Adiabatic Modes in Cosmology,’ *Journal of Cosmological and Astroparticle Physics* **1401**, 039 (2014) [arXiv:1304.5527 [hep-th]].
- [46] K. Hinterbichler, J. Khoury, H. Nastase and R. Rosenfeld, ‘Chameleonic inflation,’ *Journal of High Energy Physics* **1308**, 053 (2013) [arXiv:1301.6756 [hep-th]].
- [47] K. Hinterbichler, A. Joyce, J. Khoury and G. E. J. Miller, ‘Dirac-Born-Infeld Genesis: An Improved Violation of the Null Energy Condition,’ *Physical Review Letters* **110**, no. 24, 241303 (2013) [arXiv:1212.3607 [hep-th]].
- [48] P. Creminelli, A. Joyce, J. Khoury and M. Simonovic, ‘Consistency Relations for the Conformal Mechanism,’ *Journal of Cosmological and Astroparticle Physics* **1304**, 020 (2013) [arXiv:1212.3329].
- [49] K. Hinterbichler, A. Joyce, J. Khoury and G. E. J. Miller, ‘DBI Realizations of the Pseudo-Conformal Universe and Galilean Genesis Scenarios,’ *Journal of Cosmological and Astroparticle Physics* **1212**, 030 (2012) [arXiv:1209.5742 [hep-th]].
- [50] P. Creminelli, K. Hinterbichler, J. Khoury, A. Nicolis and E. Trincherini, ‘Subluminal Galilean Genesis,’ *Journal of High Energy Physics* **1302**, 006 (2013) [arXiv:1209.3768 [hep-th]].
- [51] G. Gabadadze, K. Hinterbichler, J. Khoury, D. Pirtskhalava and M. Trodden, ‘A Covariant Master Theory for Novel Galilean Invariant Models and Massive Gravity,’ *Physical Review D* **86**, 124004 (2012) [arXiv:1208.5773 [hep-th]].

- [52] J. Wang, L. Hui and J. Khoury, “No-Go Theorems for Generalized Chameleon Field Theories,” *Physical Review Letters* **109**, 241301 (2012) [arXiv:1208.4612 [astro-ph.CO]].
- [53] A. Upadhye, W. Hu and J. Khoury, “Quantum Stability of Chameleon Field Theories,” *Physical Review Letters* **109**, 041301 (2012) [arXiv:1204.3906 [hep-ph]].
- [54] K. Hinterbichler, L. Hui and J. Khoury, “Conformal Symmetries of Adiabatic Modes in Cosmology,” *Journal of Cosmological and Astroparticle Physics* **1208**, 017 (2012) [arXiv:1203.6351 [hep-th]].
- [55] J. Khoury, B. A. Ovrut and J. Stokes, “The Worldvolume Action of Kink Solitons in AdS Spacetime,” *Journal of High Energy Physics* **1208**, 015 (2012) [arXiv:1203.4562 [hep-th]].
- [56] K. Hinterbichler, A. Joyce and J. Khoury, “Non-linear Realizations of Conformal Symmetry and Effective Field Theory for the Pseudo-Conformal Universe,” *Journal of Cosmological and Astroparticle Physics* **1206**, 043 (2012) [arXiv:1202.6056 [hep-th]].
- [57] J. Clampitt, B. Jain and J. Khoury, “Halo Scale Predictions of Symmetron Modified Gravity,” *Journal of Cosmological and Astroparticle Physics* **1201**, 030 (2012) [arXiv:1110.2177 [astro-ph.CO]].
- [58] J. Khoury, G. E. J. Miller and A. J. Tolley, “Spatially Covariant Theories of a Transverse, Traceless Graviton, Part I: Formalism,” *Physical Review D* **85**, 084002 (2012) [arXiv:1108.1397 [hep-th]].
- [59] A. Joyce and J. Khoury, “Strong Coupling Problem with Time-Varying Sound Speed,” *Physical Review D* **84**, 083514 (2011) [arXiv:1107.3550 [hep-th]].
- [60] K. Hinterbichler, J. Khoury, A. Levy and A. Matas, “Symmetron Cosmology,” *Physical Review D* **84**, 103521 (2011) [arXiv:1107.2112 [astro-ph.CO]].
- [61] K. Hinterbichler and J. Khoury, “The Pseudo-Conformal Universe: Scale Invariance from Spontaneous Breaking of Conformal Symmetry,” *Journal of Cosmological and Astroparticle Physics* **1204**, 023 (2012) [arXiv:1106.1428 [hep-th]].
- [62] A. Joyce and J. Khoury, “Scale Invariance via a Phase of Slow Expansion,” *Physical Review D* **84**, 023508 (2011) [arXiv:1104.4347 [hep-th]].
- [63] J. Khoury, J. L. Lehnert and B. A. Ovrut, “Supersymmetric Galileons,” *Physical Review D* **84**, 043521 (2011) [arXiv:1103.0003 [hep-th]].
- [64] N. Agarwal, R. Bean, J. Khoury and M. Trodden, “Screening bulk curvature in the presence of large brane tension,” *Physical Review D* **83**, 124004 (2011) [arXiv:1102.5091 [hep-th]].
- [65] J. Khoury and P. J. Steinhardt, “Generating Scale-Invariant Perturbations from Rapidly-Evolving Equation of State,” *Physical Review D* **83**, 123502 (2011) [arXiv:1101.3548 [hep-th]].
- [66] K. Hinterbichler, J. Khoury and H. Nastase, “Towards a UV Completion for Chameleon Scalar Theories,” *Journal of High Energy Physics* **1103**, 061 (2011) [arXiv:1012.4462 [hep-th]].
- [67] J. Khoury, J. L. Lehnert and B. Ovrut, “Supersymmetric $P(X, \phi)$ and the Ghost Condensate,” *Physical Review D* **83**, 125031 (2011) [arXiv:1012.3748 [hep-th]].
- [68] J. Khoury and G. E. J. Miller, “Towards a Cosmological Dual to Inflation,” *Physical Review D* **84**, 023511 (2011) [arXiv:1012.0846 [hep-th]].

- [69] M. Andrews, K. Hinterbichler, J. Khoury and M. Trodden, “Instabilities of Spherical Solutions with Multiple Galileons and $SO(N)$ Symmetry,” *Physical Review D* **83**, 044042 (2011) [arXiv:1008.4128 [hep-th]].
- [70] B. Jain and J. Khoury, “Cosmological Tests of Gravity,” *Annals of Physics* **325**, 1479 (2010) [arXiv:1004.3294 [astro-ph.CO]].
- [71] M. Wyman and J. Khoury, “Enhanced Peculiar Velocities in Brane-Induced Gravity,” *Physical Review D* **82**, 044032 (2010) [arXiv:1004.2046 [astro-ph.CO]].
- [72] C. de Rham, J. Khoury and A. J. Tolley, “Cascading Gravity is Ghost Free,” *Physical Review D* **81**, 124027 (2010) [arXiv:1002.1075 [hep-th]].
- [73] K. Hinterbichler and J. Khoury, “Symmetron Fields: Screening Long-Range Forces Through Local Symmetry Restoration,” *Physical Review Letters* **104**, 231301 (2010) [arXiv:1001.4525 [hep-th]].
- [74] N. Agarwal, R. Bean, J. Khoury and M. Trodden, “Cascading Cosmology,” *Physical Review D* **81**, 084020 (2010) [arXiv:0912.3798 [hep-th]].
- [75] J. Khoury and P. J. Steinhardt, “Adiabatic Ekpyrosis: Scale-Invariant Curvature Perturbations from a Single Scalar Field in a Contracting Universe,” *Physical Review Letters* **104**, 091301 (2010) [arXiv:0910.2230 [hep-th]].
- [76] C. de Rham, J. Khoury and A. J. Tolley, “Flat 3-Brane with Tension in Cascading Gravity,” *Physical Review Letters* **103**, 161601 (2009) [arXiv:0907.0473 [hep-th]].
- [77] N. Chow and J. Khoury, “Galileon Cosmology,” *Physical Review D* **80**, 024037 (2009) [arXiv:0905.1325 [hep-th]].
- [78] J. Khoury and M. Wyman, “N-Body Simulations of DGP and Degravitation Theories,” *Physical Review D* **80**, 064023 (2009) [arXiv:0903.1292 [astro-ph.CO]].
- [79] N. Afshordi, G. Geshnizjani and J. Khoury, “Do observations offer evidence for cosmological-scale extra dimensions?,” *Journal of Cosmological and Astroparticle Physics* **0908**, 030 (2009) [arXiv:0812.2244 [astro-ph]].
- [80] J. Khoury and F. Piazza, “Rapidly-Varying Speed of Sound, Scale Invariance and Non-Gaussian Signatures,” *Journal of Cosmological and Astroparticle Physics* **0907**, 026 (2009) [arXiv:0811.3633 [hep-th]].
- [81] C. de Rham, S. Hofmann, J. Khoury and A. J. Tolley, “Cascading Gravity and Degravitation,” *Journal of Cosmological and Astroparticle Physics* **0802**, 011 (2008) [arXiv:0712.2821 [hep-th]].
- [82] C. de Rham, G. Dvali, S. Hofmann, J. Khoury, O. Pujolas, M. Redi and A. J. Tolley, “Cascading gravity: Extending the Dvali-Gabadadze-Porrati model to higher dimension,” *Physical Review Letters* **100**, 251603 (2008) [arXiv:0711.2072 [hep-th]].
- [83] E. I. Buchbinder, J. Khoury and B. A. Ovrut, “Non-Gaussianities in new ekpyrotic cosmology,” *Physical Review Letters* **100**, 171302 (2008) [arXiv:0710.5172 [hep-th]].
- [84] E. I. Buchbinder, J. Khoury and B. A. Ovrut, “On the initial conditions in new ekpyrotic cosmology,” *Journal of High Energy Physics* **0711**, 076 (2007) [arXiv:0706.3903 [hep-th]].
- [85] G. Dvali, S. Hofmann and J. Khoury, “Degravitation of the cosmological constant and graviton width,” *Physical Review D* **76**, 084006 (2007) [hep-th/0703027 [HEP-TH]].

- [86] E. I. Buchbinder, J. Khoury and B. A. Ovrut, “New Ekpyrotic cosmology,” *Physical Review D* **76**, 123503 (2007) [hep-th/0702154].
- [87] J. Khoury and M. Parikh, “Mach’s Holographic Principle,” *Physical Review D* **80**, 084004 (2009) [hep-th/0612117].
- [88] J. Khoury, “Fading gravity and self-inflation,” *Physical Review D* **76**, 123513 (2007) [hep-th/0612052].
- [89] R. H. Brandenberger, S. Kanno, J. Soda, D. A. Easson, J. Khoury, P. Martineau, A. Nayeri and S. P. Patil, “More on the spectrum of perturbations in string gas cosmology,” *Journal of Cosmological and Astroparticle Physics* **0611**, 009 (2006) [hep-th/0608186].
- [90] A. Upadhye, S. S. Gubser and J. Khoury, “Unveiling chameleons in tests of gravitational inverse-square law,” *Physical Review D* **74**, 104024 (2006) [hep-ph/0608186].
- [91] S. Das, P. S. Corasaniti and J. Khoury, “Super-acceleration as signature of dark sector interaction,” *Physical Review D* **73**, 083509 (2006) [astro-ph/0510628].
- [92] S. Wang, Z. Haiman, W. Hu, J. Khoury and M. May, “Weighing neutrinos with galaxy cluster surveys,” *Physical Review Letters* **95**, 011302 (2005) [astro-ph/0505390].
- [93] P. Brax, C. van de Bruck, A. C. Davis, J. Khoury and A. Weltman, “Detecting dark energy in orbit - The Cosmological chameleon,” *Physical Review D* **70**, 123518 (2004) [astro-ph/0408415].
- [94] S. Wang, J. Khoury, Z. Haiman and M. May, “Constraining the evolution of dark energy with a combination of galaxy cluster observables,” *Physical Review D* **70**, 123008 (2004) [astro-ph/0406331].
- [95] S. S. Gubser and J. Khoury, “Scalar self-interactions loosen constraints from fifth force searches,” *Physical Review D* **70**, 104001 (2004) [hep-ph/0405231].
- [96] R. Easther, J. Khoury and K. Schalm, “Tuning locked inflation: Supergravity versus phenomenology,” *Journal of Cosmological and Astroparticle Physics* **0406**, 006 (2004) [hep-th/0402218].
- [97] J. Khoury and A. Weltman, “Chameleon cosmology,” *Physical Review D* **69**, 044026 (2004) [astro-ph/0309411].
- [98] J. Khoury and A. Weltman, “Chameleon fields: Awaiting surprises for tests of gravity in space,” *Physical Review Letters* **93**, 171104 (2004) [astro-ph/0309300].
- [99] J. Khoury, P. J. Steinhardt and N. Turok, “Designing cyclic universe models,” *Physical Review Letters* **92**, 031302 (2004) [hep-th/0307132].
- [100] J. Khoury, P. J. Steinhardt and N. Turok, “Inflation versus cyclic predictions for spectral tilt,” *Physical Review Letters* **91**, 161301 (2003) [astro-ph/0302012].
- [101] S. Gratton, J. Khoury, P. J. Steinhardt and N. Turok, “Conditions for generating scale-invariant density perturbations,” *Physical Review D* **69**, 103505 (2004) [astro-ph/0301395].
- [102] J. Khoury and R. J. Zhang, “On the Friedmann equation in brane world scenarios,” *Physical Review Letters* **89**, 061302 (2002) [hep-th/0203274].
- [103] J. Khoury, B. A. Ovrut, P. J. Steinhardt and N. Turok, “Density perturbations in the ekpyrotic scenario,” *Physical Review D* **66**, 046005 (2002) [hep-th/0109050].

- [104] J. Khoury, B. A. Ovrut, N. Seiberg, P. J. Steinhardt and N. Turok, “From big crunch to big bang,” *Physical Review D* **65**, 086007 (2002) [hep-th/0108187].
- [105] R. Y. Donagi, J. Khoury, B. A. Ovrut, P. J. Steinhardt and N. Turok, “Visible branes with negative tension in heterotic M theory,” *Journal of High Energy Physics* **0111**, 041 (2001) [hep-th/0105199].
- [106] J. Khoury, B. A. Ovrut, P. J. Steinhardt and N. Turok, “The Ekpyrotic universe: Colliding branes and the origin of the hot big bang,” *Physical Review D* **64**, 123522 (2001) [hep-th/0103239].
- [107] J. Khoury, P. J. Steinhardt and D. Waldram, “Inflationary solutions in the brane world and their geometrical interpretation,” *Physical Review D* **63**, 103505 (2001) [hep-th/0006069].
- [108] J. Khoury and H. L. Verlinde, “On open - closed string duality,” *Advances in Theoretical and Mathematical Physics* **3**, 1893 (1999) [hep-th/0001056].