Grant Newton Remmen — Curriculum Vitae

Contact Information	Center for Cosmology and Particle Physics New York University	*e-mail:* grant.remmen@nyu.edu *web:* grantremmen.com

Positions

New York University, James Arthur Postdoctoral Fellow — 2023–present

University of California, Santa Barbara, Fundamental Physics Fellow — 2020–2023
Kavli Institute for Theoretical Physics, Postdoctoral Scholar

University of California, Berkeley, Miller Research Fellow — 2017–2020

Harvard University Society of Fellows, Junior Fellow (declined) — 2017

Education

California Institute of Technology — 2012–2017
Ph.D., Physics — June 2017
M.S., Physics — June 2015
Hertz Fellow and NSF Graduate Research Fellow

University of Minnesota, College of Science & Engineering — 2008–2012
B.S., Physics, *summa cum laude*, High Distinction, 4.0 GPA — May 2012
B.S., Astrophysics, *summa cum laude*, High Distinction, 4.0 GPA — May 2012
B.S., Mathematics, *summa cum laude*, High Distinction, 4.0 GPA — May 2012

Selected Honors & Awards

Appointed as Hertz Fellowship Interviewer — 2018–present

Sakurai Dissertation Award in Theoretical Particle Physics — 2018
American Physical Society award citation: "For his contributions to understanding the structure and self-consistency of gravity and effective field theories using ideas from quantum field theory and holography."

Stemple Memorial Prize in Physics, Caltech — 2016

United States Delegate to the 66$^{\text{th}}$ Lindau Nobel Laureate Meeting — 2016

Hertz Fellow — 2012–2017

NSF Graduate Research Fellow, National Science Foundation — 2012–2017

Goldwater Scholar — 2010–2012

Chambliss Astronomy Achievement Student Award, — 2011
American Astronomical Society

Dean's Summer International Student Scholarship, University College London — 2011

National Merit Scholar — 2008–2012

Byrd Honors Scholar — 2008–2011

United States Presidential Scholar, — 2008
White House Commission on Presidential Scholars & U.S. Dept. of Education

Press

NYU News | *Physicists 'Bootstrap' Validity of String Theory* — December 2024

Phys.org | — September 2023
Theoretical Study Shows That Kerr Black Holes Could Amplify New Physics

Physics Magazine, APS | *New Physics Magnified in Spinning Black Holes* — August 2023

The Current, UCSB | *Quantum Zeta Epiphany* — January 2022

Physics Magazine, APS | *A Physical Match for the Riemann Zeta Function* — December 2021

Quanta Magazine | — May 2020
Black Hole Paradoxes Reveal a Fundamental Link Between Energy and Order

PUBLICATIONS

66. Nima Arkani-Hamed, Carolina Figueiredo, **Grant N. Remmen** — to be submitted, JHEP
Open String Amplitudes: Singularities, Asymptotics, and New Representations — arXiv:2412.20639

65. Avik Banerjee, Achilleas P. Porfyriadis, **Grant N. Remmen** — to be submitted, JHEP
Accidental Symmetry Near Extreme Spinning Black Holes — arXiv:2412.19880

64. **Grant N. Remmen**, Nicholas L. Rodd — to be submitted, Phys. Rev. Lett.
Positively Identifying HEFT or SMEFT — arXiv:2412.07827

63. Gauthier Durieux, **Grant N. Remmen**, Nicholas L. Rodd et al. — under review, SciPost
LHC EFT WG Note: Basis for Anomalous Quartic Gauge Couplings — arXiv:2411.02483

62. Clifford Cheung, Aaron Hillman, **Grant N. Remmen** — under review, Phys. Rev. Lett.
Uniqueness Criteria for the Virasoro-Shapiro Amplitude — arXiv:2408.03362

61. Clifford Cheung, Aaron Hillman, **Grant N. Remmen** — Phys. Rev. Lett. **133** (2024) 251601
A Bootstrap Principle for the Spectrum and Scattering of Strings — arXiv:2406.02665

60. Gary T. Horowitz, Maciej Kolanowski, **Grant N. Remmen**, Jorge E. Santos — JHEP **5** (2024) 122
Sudden Breakdown of Effective Field Theory Near Cool Kerr-Newman Black Holes — arXiv:2403.00051

59. Rafael Aoude, Gilly Elor, **Grant N. Remmen**, Olcyr Sumensari — under review, JHEP
Positivity in Amplitudes from Quantum Entanglement — arXiv:2402.16956

58. Nima Arkani-Hamed, Clifford Cheung, Carolina Figueiredo, **Grant N. Remmen** — Phys. Rev. Lett. **132** (2024) 091601
Multiparticle Factorization and the Rigidity of String Theory — arXiv:2312.07652

57. Aidan Chatwin-Davies, Pompey Leung, **Grant N. Remmen** — Phys. Rev. D **109** (2024) 046003
Holographic Screen Sequestration — arXiv:2312.06750

56. Xi Dong, **Grant N. Remmen**, Diandian Wang, Wayne W. Weng, Chih-Hung Wu — JHEP **11** (2023) 207
Holographic Entanglement from the UV to the IR — arXiv:2308.07952

55. Clifford Cheung, **Grant N. Remmen** — Phys. Rev. D **108** (2023) 086009
Bespoke Dual Resonance — arXiv:2308.03833

54. Gary T. Horowitz, Maciej Kolanowski, **Grant N. Remmen**, Jorge E. Santos — Phys. Rev. Lett. **131** (2023) 091402 Editors' Suggestion
Extremal Kerr Black Holes as Amplifiers of New Physics — arXiv:2303.07358

53. Clifford Cheung, **Grant N. Remmen** — Phys. Rev. D **108** (2023) 026011
Stringy Dynamics from an Amplitudes Bootstrap — arXiv:2302.12263

52. Achilleas P. Porfyriadis, **Grant N. Remmen** — JHEP **3** (2023) 125
Charged Dilatonic Spacetimes in String Theory — arXiv:2301.08256

51. Clifford Cheung, **Grant N. Remmen** — JHEP **1** (2023) 122
Veneziano Variations: How Unique are String Amplitudes? — arXiv:2210.12163

50. Marat Freytsis, Soubhik Kumar, **Grant N. Remmen**, Nicholas L. Rodd — JHEP **9** (2023) 41
Multifield Positivity Bounds for Inflation — arXiv:2210.10791

49. Juan Maldacena, **Grant N. Remmen** — JHEP **8** (2022) 152
Accumulation-Point Amplitudes in String Theory — arXiv:2207.06426

48. **Grant N. Remmen**, Nicholas L. Rodd — JHEP **9** (2022) 30
Spinning Sum Rules for the Dimension-Six SMEFT — arXiv:2206.13524

PUBLICATIONS, CONTINUED

47. Yu-tin Huang, **Grant N. Remmen** Phys. Rev. D **106** (2022) L021902
UV-Complete Gravity Amplitudes and the Triple Product arXiv:2203.00696

46. Achilleas P. Porfyriadis, **Grant N. Remmen** JHEP **3** (2022) 107
Large Diffeomorphisms and Accidental Symmetry of the Extremal Horizon arXiv:2112.13853

45. **Grant N. Remmen** Gen. Rel. Grav. **53** (2021) 101
Exploration of a Singular Fluid Spacetime arXiv:2111.08713

44. Nima Arkani-Hamed, Yu-tin Huang, Jin-Yu Liu, **Grant N. Remmen** JHEP **3** (2022) 83
Causality, Unitarity, and the Weak Gravity Conjecture arXiv:2109.13937

43. **Grant N. Remmen** Phys. Rev. Lett. **127** (2021) 241602
Amplitudes and the Riemann Zeta Function Editors' Suggestion
arXiv:2108.07820

42. Achilleas P. Porfyriadis, **Grant N. Remmen** JHEP **10** (2021) 142
Horizon Acoustics of the GHS Black Hole and the Spectrum of AdS_2 arXiv:2106.10282

41. Ning Bao, Aidan Chatwin-Davies, **Grant N. Remmen** JHEP **7** (2021) 113
Entanglement Wedge Cross Section Inequalities from Replicated Geometries arXiv:2106.02640

40. Ning Bao, Jonathan Harper, **Grant N. Remmen** Phys. Rev. D **105** (2022) 026010
Holevo Information of Black Hole Mesostates arXiv:2103.06888

39. **Grant N. Remmen**, Nicholas L. Rodd Phys. Rev. D **105** (2022) 036006
Signs, Spin, SMEFT: Sum Rules at Dimension Six arXiv:2010.04723

38. Rafael Aoude et al. (including **Grant N. Remmen**) Snowmass 2021 Letter of Interest
On-Shell Methods for the SMEFT

37. Ning Bao, Aidan Chatwin-Davies, **Grant N. Remmen** JHEP **9** (2020) 102
Warping Wormholes with Dust: arXiv:2006.10762
a Metric Construction of the Python's Lunch

36. **Grant N. Remmen**, Nicholas L. Rodd Phys. Rev. Lett. **125** (2020) 081601
Flavor Constraints from Unitarity and Analyticity arXiv:2004.02885

35. Clifford Cheung, **Grant N. Remmen** JHEP **5** (2020) 100
Entanglement and the Double Copy arXiv:2002.10470

34. Ning Bao, Aidan Chatwin-Davies, Jason Pollack, **Grant N. Remmen** JHEP **8** (2020) 65
Cosmological Decoherence from Thermal Gravitons arXiv:1911.10207

33. **Grant N. Remmen**, Nicholas L. Rodd JHEP **12** (2019) 32
Consistency of the Standard Model Effective Field Theory arXiv:1908.09845

32. Ning Bao, Aidan Chatwin-Davies, Jason Pollack, **Grant N. Remmen** JHEP **7** (2019) 152
Towards a Bit Threads Derivation of arXiv:1905.04317
Holographic Entanglement of Purification

31. Clifford Cheung, Junyu Liu, **Grant N. Remmen** Phys. Rev. D **100** (2019) 046003
Entropy Bounds on Effective Field Theory from arXiv:1903.09156
Rotating Dyonic Black Holes

30. Raphael Bousso, Yasunori Nomura, **Grant N. Remmen** Phys. Rev. D **99** (2019) 046002
Outer Entropy and Quasilocal Energy arXiv:1812.06987

29. Ning Bao, Aidan Chatwin-Davies, **Grant N. Remmen** JHEP **2** (2019) 110
Entanglement of Purification and Multiboundary Wormhole Geometries arXiv:1811.01983

28. **Grant N. Remmen** Phys. Rev. D **98** (2018) 124008
New Spacetimes for Rotating Dust in arXiv:1810.12305
$(2+1)$-Dimensional General Relativity

PUBLICATIONS, CONTINUED

27. Ning Bao, Aidan Chatwin-Davies, Jason Pollack, **Grant N. Remmen** JHEP **11** (2018) 71
Traversable Wormholes as Quantum Channels: arXiv:1808.05963
Exploring CFT Entanglement Structure and Channel Capacity in Holography

26. Yasunori Nomura, **Grant N. Remmen** JHEP **8** (2018) 63
Area Law Unification and the Holographic Event Horizon arXiv:1805.09339

25. Venkatesa Chandrasekaran, **Grant N. Remmen**, JHEP **11** (2018) 15
Arvin Shahbazi-Moghaddam arXiv:1804.03153
Higher-Point Positivity

24. Clifford Cheung, Junyu Liu, **Grant N. Remmen** JHEP **10** (2018) 4
Proof of the Weak Gravity Conjecture from Black Hole Entropy arXiv:1801.08546

23. Ning Bao, Sean M. Carroll, Aidan Chatwin-Davies, Phys. Rev. D **97** (2018) 126014
Jason Pollack, **Grant N. Remmen** arXiv:1712.04955
Branches of the Black Hole Wave Function Need Not Contain Firewalls

22. Chris Akers, Raphael Bousso, Illan F. Halpern, Phys. Rev. D **97** (2018) 024018
Grant N. Remmen arXiv:1711.06689
Boundary of the Future of a Surface

21. Clifford Cheung, **Grant N. Remmen**, Chia-Hsien Shen, Congkao Wen JHEP **4** (2018) 129
Pions as Gluons in Higher Dimensions arXiv:1709.04932

20. Clifford Cheung, **Grant N. Remmen** JHEP **9** (2017) 2
Hidden Simplicity of the Gravity Action arXiv:1705.00626

19. Sean M. Carroll, **Grant N. Remmen** Phys. Rev. D **95** (2017) 123504
A Nonlocal Approach to the Cosmological Constant Problem arXiv:1703.09715

18. Ning Bao, **Grant N. Remmen** EPL **121** (2018) 60007, Editor's Choice
Bulk Connectedness and Boundary Entanglement arXiv:1703.00018

17. Clifford Cheung, **Grant N. Remmen** JHEP **1** (2017) 104
Twofold Symmetries of the Pure Gravity Action arXiv:1612.03927

16. Clifford Cheung, **Grant N. Remmen** Phys. Rev. Lett. **118** (2017) 051601
Positivity of Curvature-Squared Corrections in Gravity arXiv:1608.02942

15. **Grant N. Remmen**, Ning Bao, Jason Pollack JHEP **7** (2016) 48
Entanglement Conservation, ER = EPR, arXiv:1604.08217
and a New Classical Area Theorem for Wormholes

14. Sean M. Carroll, **Grant N. Remmen** Phys. Rev. D **93** (2016) 124052
What is the Entropy in Entropic Gravity? arXiv:1601.07558

13. Clifford Cheung, **Grant N. Remmen** JHEP **4** (2016) 2
Positive Signs in Massive Gravity arXiv:1601.04068

12. Ning Bao, Jason Pollack, **Grant N. Remmen** JHEP **11** (2015) 126
Wormhole and Entanglement (Non-)Detection arXiv:1509.05426
in the ER = EPR Correspondence

11. Brando Bellazzini, Clifford Cheung, **Grant N. Remmen** Phys. Rev. D **93** (2016) 064076
Quantum Gravity Constraints from Unitarity and Analyticity arXiv:1509.00851

10. Ning Bao, Jason Pollack, **Grant N. Remmen** Fortschr. Phys. **63** (2015) 705
Splitting Spacetime and Cloning Qubits: arXiv:1506.08203
Linking No-Go Theorems across the ER = EPR Duality

9. Ning Bao, ChunJun Cao, Sean M. Carroll, Aidan Chatwin-Davies, Nicholas Hunter-Jones, Jason Pollack, **Grant N. Remmen** Phys. Rev. D **91** (2015) 125036
arXiv:1504.06632
Consistency Conditions for an AdS Multiscale Entanglement Renormalization Ansatz Correspondence

PUBLICATIONS, CONTINUED

8. Clifford Cheung, **Grant N. Remmen** JHEP **12** (2014) 87
Infrared Consistency and the Weak Gravity Conjecture arXiv:1407.7865

7. **Grant N. Remmen**, Sean M. Carroll Phys. Rev. D **90** (2014) 063517
How Many e-Folds Should We Expect from High-Scale Inflation? arXiv:1405.5538

6. Clifford Cheung, **Grant N. Remmen** Phys. Rev. Lett. **113** (2014) 051601
Naturalness and the Weak Gravity Conjecture arXiv:1402.2287

5. **Grant N. Remmen**, Sean M. Carroll Phys. Rev. D **88** (2013) 083518
Attractor Solutions in Scalar-Field Cosmology arXiv:1309.2611

4. **Grant N. Remmen**, Kris Davidson, Andrea Mehner Astrophys. J. **773** (2013) 27
Unexpected Ionization Structure in Eta Carinae's "Weigelt Knots" arXiv:1302.2659

3. **Grant N. Remmen**, Kinwah Wu Mon. Not. R. Astron. Soc. **430** (2013) 1940
Complex Orbital Dynamics of a Double Neutron Star System Revolving around a Massive Black Hole arXiv:1301.2836

2. **Grant Remmen**, Elwood McCreary JURP **25** (2012)
Measurement of the Speed and Energy Distribution of Cosmic Ray Muons

1. **Grant Remmen** JURP **23** (2010)
A New Assessment of Dark Matter in the Milky Way Galaxy

TALKS

Durham University, UK | Amplitudes and Correlators Seminar (virtual)	December 2024
Northeastern University | High Energy Theory Seminar (virtual)	November 2024
CERN | ATLAS Electroweak Working Group Meeting (virtual)	September 2024
Solvay Workshop on Near-Extremal Black Holes | International Solvay Institutes and ULB, Brussels, Belgium	September 2024
Modern Trends in Gravity and Black Holes Workshop | University of Crete, Greece	June 2024
Harvard University | Swampland Seminar	May 2024
Surveying the Landscape Workshop | University of Massachusetts Amherst, ACFI	April 2024
Johns Hopkins University | High Energy Physics Theory Seminar	April 2024
Particle Theory Initiative, What is String Theory? Program | Kavli Institute for Theoretical Physics	March 2024
California Institute of Technology | High Energy Theory Seminar	March 2024
University of Wisconsin–Madison | Theory Seminar	February 2024
University of Pennsylvania | High Energy Theory Seminar	January 2024
Columbia University | Theory Seminar	January 2024
University of Washington | Particle Theory Seminar	November 2023
Crete Center for Theoretical Physics | High Energy Seminar (virtual)	November 2023
New York University, CCPP | Brown Bag Seminar	October 2023
Boston University | High Energy Theory Seminar	September 2023
Swamplandia Workshop | Instituto de Física Teórica, UAM-CSIC, and Harvard University, Madrid, Spain	September 2023
Amplitudes 2023 | CERN	August 2023
Strings 2023 | Perimeter Institute for Theoretical Physics	July 2023
Kavli Institute for Theoretical Physics | Generalized Symmetries Reading Group	June 2023

TALKS, CONTINUED	Quark Confinement 2023 | University of Minnesota Simons Collaboration on Confinement and QCD Strings	May 2023
	Kavli Institute for Theoretical Physics | Locals' Lunch Talk	April 2023
	CERN | Standard Model Electroweak Group Meeting, ATLAS Collaboration (virtual)	April 2023
	McGill University | High Energy Theory Group Meeting (virtual)	April 2023
	University of Chicago, Kadanoff Center for Theoretical Physics | Particle Theory Seminar	April 2023
	Princeton University | High Energy Theory Seminar	March 2023
	California Amplitudes Meeting | UC San Diego	March 2023
	University of Michigan, LCTP | High Energy Theory Seminar (two parts)	March 2023
	Indiana University | High-Energy Physics/Astrophysics Seminar	March 2023
	California Institute of Technology | Amplitudes Group Meeting	February 2023
	Bootstrapping Quantum Gravity Program | Kavli Institute for Theoretical Physics	February 2023
	Stony Brook University, Simons Center for Geometry and Physics | Special Physics Seminar	February 2023
	UC Davis, QMAP | Particles/Cosmology Seminar	January 2023
	Brown University | High Energy Theory Seminar (virtual)	November 2022
	Number Theory and Physics Workshop | Simons Center for Geometry and Physics, Stony Brook University (virtual)	October 2022
	Institute for Advanced Study | Amplitudes Group Meeting	October 2022
	Simons Symposium on Amplitudes Meet Cosmology | Scotland	May 2022
	UC Santa Barbara | High Energy and Gravity Seminar	May 2022
	Possible and Impossible in Effective Field Theory: From the S-Matrix to the Swampland Workshop | Institute for Advanced Study	May 2022
	Argonne National Laboratory | High Energy Physics Theory Seminar (virtual)	April 2022
	Kavli IPMU, Univ. Tokyo | Mathematics - String Theory Seminar (virtual)	April 2022
	California Amplitudes Meeting | UC Davis	March 2022
	California Institute of Technology | Amplitudes Group Meeting	February 2022
	UC Irvine | Particle Physics Seminar	January 2022
	QCD Meets Gravity Workshop | UCLA (virtual)	December 2021
	Kavli Institute for Theoretical Physics | Locals' Event	November 2021
	UC Santa Barbara | High Energy and Gravity Seminar (virtual)	November 2021
	International Centre for Theoretical Physics | High Energy, Cosmology, and Astroparticle Physics Seminar (virtual)	November 2021
	Brandeis University | Quantum/Gravity Seminar (virtual)	November 2021
	ETH Zürich | QFT, Strings and Beyond Seminar (virtual)	October 2021
	Perimeter Institute | Quantum Fields and Strings Seminar (virtual)	October 2021
	Hertz Foundation Innovation Hour (virtual)	June 2021
	California Amplitudes Meeting | UCLA (virtual)	March 2021
	New York University | Physics Department Colloquium (virtual)	March 2021

TALKS, CONTINUED

New York University | Physics Research Seminar (virtual)	February 2021
University of Florida | High Energy Physics Seminar (virtual)	January 2021
University of Chicago | Particle Theory Seminar (virtual)	January 2021
Korea Institute for Advanced Study | High Energy Physics Seminar (virtual) Seoul, South Korea	December 2020
UC Santa Barbara | High Energy and Gravity Seminar (virtual)	November 2020
Yale University | Particle Theory Seminar (virtual)	October 2020
Brookhaven National Laboratory | High Energy Theory Seminar (virtual)	April 2020
Kavli IPMU, Univ. Tokyo | Astronomy-Cosmology-Particle Physics Seminar (virtual)	April 2020
UC Davis, QMAP | Fields, Strings, Gravity Seminar (virtual)	April 2020
The String Swampland and Quantum Gravity Constraints on Effective Theories Program | Kavli Institute for Theoretical Physics	March 2020
Brandeis University | High-Energy and Gravitational Theory Chalk Talk	January 2020
Brandeis University | Physics Department Colloquium	January 2020
University of Michigan, LCTP | High Energy Theory Seminar	November 2019
From Scattering to Expansion Workshop | Northwestern University	October 2019
UC Santa Barbara | Particle Physics Phenomenology Seminar	October 2019
UC Santa Barbara | High Energy and Gravity Seminar	October 2019
Navigating the Swampland Workshop | Instituto de Física Teórica, UAM-CSIC, Madrid, Spain	September 2019
University of Washington | AdS/CFT Group Meeting	May 2019
University of Washington | Particle Theory Seminar	May 2019
University of Minnesota, FTPI | High Energy Theory Seminar	April 2019
Stanford University | Stanford Institute for Theoretical Physics Colloquium	April 2019
UC Berkeley | 4D Seminar	April 2019
California Institute of Technology | High Energy Theory Seminar	February 2019
UC Davis | Joint Theory Seminar	January 2019
Harvard University | Black Hole Initiative Colloquium	November 2018
Cornell University | Particle Theory Seminar	October 2018
Institute for Advanced Study | High Energy Theory Seminar	October 2018
Vistas over the Swampland Workshop | Instituto de Física Teórica, UAM-CSIC, Madrid, Spain	September 2018
King's College London | Special Seminar, Theoretical Particle Physics & Cosmology	June 2018
Gravity, Cosmology & Physics Beyond the Standard Model Conference | LPNHE, UPMC, Paris, France	June 2018
Sakurai Thesis Prize Talk | American Physical Society April Meeting, Columbus, OH *Quantum Gravity Constraints for Effective Field Theories*	April 2018
University of Illinois, Urbana-Champaign | Mathematical and Theoretical Physics Seminar	April 2018

TALKS, CONTINUED	McGill University | High Energy Theory Group Seminar (virtual)	March 2018
	California Institute of Technology | High Energy Theory Seminar	February 2018
	California Institute of Technology | Quantum Spacetime Meeting	February 2018
	UC Berkeley | String Seminar	February 2018
	Stanford University | Stanford Institute for Theoretical Physics Seminar	January 2018
	SLAC National Accelerator Laboratory | Elementary Particle Physics Theory Seminar	October 2017
	Institute for Advanced Study | High Energy Theory Seminar	October 2017
	Massachusetts Institute of Technology | String/Gravity Theory Seminar	May 2017
	California Institute of Technology | Theoretical Physics Research Group Meeting	April 2017
	California Institute of Technology | Theoretical Physics Journal Club	April 2017
	UC Berkeley | String Seminar	February 2017
	QCD Meets Gravity Workshop | UCLA	December 2016
	California Institute of Technology | Theoretical Physics Research Group Meeting	November 2016
	California Institute of Technology | Theoretical Physics Research Group Meeting	October 2016
	Johns Hopkins University | High Energy Theory/Cosmology Seminar	October 2016
	California Institute of Technology | Theoretical Physics Research Group Meeting	May 2016
	New York University | High Energy Seminar	April 2016
	Harvard University | Particle Theory Seminar	April 2016
	California Institute of Technology | Theoretical Physics Research Group Meeting	February 2016
	California Institute of Technology | Theoretical Physics Research Group Meeting	November 2015
	California Institute of Technology | Theoretical Physics Journal Club	October 2015
	California Institute of Technology | Theoretical Physics Research Group Meeting	April 2015
	California Institute of Technology | Theoretical Physics Research Group Meeting	February 2015
	California Institute of Technology | Theoretical Physics Research Group Meeting	October 2014
	California Institute of Technology | Theoretical Physics Journal Club (two parts)	October 2014
	20^{th} International Symposium on Particles, Strings and Cosmology (PASCOS 2014) | Warsaw, Poland	June 2014
	California Institute of Technology | Theoretical Physics Research Group Meeting	May 2014
	California Institute of Technology | Theoretical Physics Journal Club	February 2014
	California Institute of Technology | Theoretical Physics Research Group Meeting	February 2014
	California Institute of Technology | Theoretical Physics Journal Club	September 2013
	Hertz Foundation 50^{th} Anniversary Symposium | Poster Presentation	August 2013
	American Physical Society April Meeting, Denver, CO	April 2013
	Mullard Space Science Laboratory, United Kingdom | Theory Group Meeting	August 2011
	Dean's Summer International Student Day of Talks | University College London, United Kingdom	August 2011
	217^{th} Meeting of the American Astronomical Society, Seattle, WA | Poster Presentation	January 2011

Teaching Experience

UC Santa Barbara, Department of Physics Fall 2020
Instructor and organizer of graduate short course
Impossible Physics: Constraining the Laws of Nature, from Scattering Amplitudes to Black Holes

UC Berkeley, Department of Physics April 2018
Guest lecturer in Prof. Petr Hořava's Quantum Field Theory course

University of Minnesota, Institute of Technology, Department of Astronomy Fall 2009
Teaching assistant to Prof. Robert Gehrz, Department Chair

Seminar Organization

Organizer | KITP Locals' Event Series 2022–2023

Organizer | UC Santa Barbara High Energy and Gravity Seminar Series 2020–2021

Organizer | UC Berkeley HEP-QIS Seminar Series 2018–2019

Organizer | UC Berkeley String Seminar Series 2017–2019

Conference Organization

Conference Co-Chair | Kavli Institute for Theoretical Physics (virtual) October 2020
UV Meets the IR: Effective Field Theory Bounds from QFT to String Theory

Theses

Ph.D., Physics | California Institute of Technology Defended May 2017
Grant Newton Remmen
Defining Gravity: Effective Field Theory, Entanglement, and Cosmology
Thesis advisors: Clifford Cheung and Sean M. Carroll, California Institute of Technology

B.S., Mathematics, *summa cum laude* | University of Minnesota Defended May 2012
Grant N. Remmen
Dynamics of a Rigid Spinning Ring in the Schwarzschild Metric:
A Solution to a Gravitational Problem in Mathematical Physics
Thesis advisor: Willard Miller, School of Mathematics, University of Minnesota
Research supervised by Kinwah Wu, Head of Theory,
Mullard Space Science Laboratory, University College London.

B.S., Astrophysics, *summa cum laude* | University of Minnesota Defended December 2011
Grant N. Remmen
Hubble Space Telescope *Subpixel Modeling of Anomalous*
High-Excitation Emission Lines in the Ejecta of Eta Carinae
Thesis advisor: Kris Davidson, MN Institute for Astrophysics, University of Minnesota

B.S., Physics, *summa cum laude* | University of Minnesota Defended April 2010
Grant Remmen
Distortion of Black Holes caused by Motion relative to the Cosmic Microwave Background
Thesis advisor: Robert Gehrz, Director, MN Institute for Astrophysics, University of Minnesota

Scientific & Honorary Affiliations

American Physical Society
American Astronomical Society
International Society on General Relativity and Gravitation
New York Academy of Sciences
Golden Key International Honour Society
Sigma Pi Sigma, National Physics Honor Society

Journal Referee

Physical Review Letters
Physical Review D
Journal of High Energy Physics
Nuclear Physics B
Scientific Reports - Nature
Communications in Mathematical Physics

Undergrad. Honors & Awards, University of Minnesota	**Hagstrum Award in Physics**	2012
	Outstanding Graduate in Mathematics	2012
	Franklin Scholarship in Physics	2011–2012
	Lando Scholarship in Mathematics	2011–2012
	Richards Scholarship in Mathematics	2011–2012
	Nier Scholarship in Physics	2010–2011
	Thorp Scholarship in Mathematics	2010–2011
	Undergraduate Research Scholarship	2010
	Basford Award in Physics	2009–2010
	Institute of Technology Alumni Award	2009–2010
	Institute of Technology Honors Undergraduate Research Scholarship	2009
	Maroon & Gold Leadership Award	2008–2012
	3M/Alumni Award	2008–2012
	Bentson Scholar	2008–2012
	Dean's List, College of Science & Engineering/Institute of Technology	2008–2012
	McGraw Hill Student Achievement Recognition, Meritorious Work in General Chemistry	2008

Science Outreach	Interacted with various major donors at the request of KITP	2022–2023
	Outreach talk for KITP administrative staff	May 2021
	Guest lecturer for Caltech's *Storytelling for Scientists* course	April 2021
	Presented talks on dark matter to physics classes in rural Minnesota	2011

Leadership, Service, & Cultural Activities	Co-author/-composer of a two-act musical, *From the Earth to the Moon*, based on the Verne novel	
	Caltech production of *From the Earth to the Moon* |	
	Mainstage production, Assistant to the Director	2022
	Public reading (virtual), Music Director	2021
	California Institute of Technology Graduate Student Council Board of Directors	2013–2017
	Member, Academics Committee and Director at Large	2016–2017
	Member, Academics Committee and Physics Representative	2013–2016
	California Institute of Technology Faculty Library Committee, Student Representative	2013–2017
	Co-author/-composer of a two-act musical, *Boldly Go!*, a musical parody based upon *Star Trek*	
	Caltech production of *Boldly Go!* |	
	Mainstage production, Music Director	2016
	Public reading, Music Director	2015
	University Study Abroad May Seminar: *Great Minds of the Renaissance*, Italy | History of Renaissance scientists (Galileo, da Vinci, etc.) and societal context	2011
	University of Minnesota Gospel Choir	2008–2010
	Detroit Lakes Community Summer Band Program	2008–2010
	University of Minnesota Honors Student Association	2008–2012
	University of Minnesota volunteer caller for Admissions Office	2008–2009
	U.S. Department of Education volunteer | Assembled hygiene kits for Washington, D.C. homeless	2008

Test Scores	GRE Physics—Perfect Score: 990/990	2011
	GRE General—Quantitative: 800/800, Verbal: 720/800, Analytical Writing: 5.5/6.0	2011
	SAT—Perfect Score: 2400/2400	2008
	SAT II—Perfect Scores: Math Level II 800/800 and Biology–Molecular 800/800	2008