



מכון רקח
The Racah Institute
לפיסיקה
of Physics

Faculty
פקולטה
of Science
למדעי הטבע



האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

OFRI TELEM - Curriculum Vitae

PERSONAL INFORMATION

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Senior Lecturer (Associate Professor) 2022 - present

The Racah Institute of Physics

The Hebrew University of Jerusalem

EDUCATION

Cornell University

Ph.D. in Physics 2016-2019 (Graduated in 3 years)

Advisor: Prof. Csaba Csáki

Dissertation Topic: "Beyond the Standard Model: Composite Higgs and Dark Matter"

Items [3-6] on the publication list

Technion – Israel Institute of Technology

M.Sc. in Physics 2011-2015 (during military service)

Advisor: Prof. Yael Shadmi

Thesis Topic: "Beyond the Standard Model: Naturalness and Flavor"

Items [1-2] on the publication list

The Hebrew University of Jerusalem

B.Sc. in Physics and Mathematics (Talpiot) 2007-2010

Full scholarship from the IDF as part of the Talpiot program.

EMPLOYMENT

University of California, Berkeley

Postdoctoral Fellow in Theoretical Particle Physics 2019-2022

PI: Prof. Hitoshi Murayama

Items [7-11] on the publication list and [1-5] in the addendum of papers under review

Cornell University

Teaching Assistant 2017-2019. See teaching section.

Israel Defense Forces

Research and Development Officer, Israel Defense Forces 2010-2016,

working in the Physics Group, Rafael Advanced Defense Systems.

Research in semi-analytic modeling, scientific computing, and detector simulations

HONORS

2017 – **The Douglas Fitch Memorial Award** in support of travel for an outstanding graduate student in physics

2016 – **Cornell Fellowship** one year fellowship awarded to outstanding incoming graduate students

2016 – **RAFAEL Vice President Prize** for the development, simulation, and experimental testing of a novel detection system

2011-2015 – **Five departmental innovation awards** for remarkable work as an R&D officer

TEACHING EXPERIENCE

Teaching Assistant, **Cornell University**

Spring 2019 – Introduction to Particle Physics (PHYS 4444)

Fall 2018 – Classical Electrodynamics (PHYS 6561, graduate course)

Spring 2018 – Introduction to Particle Physics (PHYS 4444)

Spring 2018 – Physics Lab in Electromagnetism (PHYS 2217)

Spring 2017 – Intermediate Quantum Mechanics (PHYS 4443)

PhD DISSERTATION

Telem, O. (2019). Beyond the Standard Model: Composite Higgs and Dark Matter. PhD thesis, Cornell University. PhD Thesis Advisor: Professor Csaba Csáki.

Relevant publications in the list of refereed publications: [3-6]

CHAPTERS IN COLLECTIONS

Csáki, C. , and Lombardo, S. , and **Telem, O.** TASI Lectures on Non-supersymmetric BSM Models. In *Anticipating The Next Discoveries In Particle Physics (Tasi 2016) - Proceedings Of 2016 Theoretical Advanced Study Institute In Elementary Particle Physics*; Essig, R., Low, I., Eds.; WSP: Singapore, 2018; pp. 501–570.

ARTICLES IN REFEREED JOURNALS

In High Energy Physics, all authors are equal contributors and are listed in alphabetical order. Citations counts are taken from INSPIRE, the High Energy Physics standard digital library, not including self-citations.

Journal rankings are taken from Google Scholar/Top Publications/Physics and Mathematics.

- [1] Geller, M. and **Telem, O.** (2015). Holographic Twin Higgs Model. Phys. Rev. Lett. 114: 191801.
- [2] Csáki, C. , and Geller, M. , and **Telem, O.** and Weiler, A. (2016). The Flavor of the Composite Twin Higgs. JHEP 09:146.
- [3] Csáki, C. , and Geller, M. and **Telem, O.** (2018). Tree-level Quartic for a Holographic Composite Higgs. JHEP 05: 134.
- [4] Geller, M. , and Iwamoto, S. , and Lee, G. , and Shadmi, Y. and **Telem, O.** (2018). Dark quarkonium formation in the early universe. JHEP 06:135.
- [5] Grossman, Y. , and Harnik, R. , and **Telem, O.** and Y. Zhang (2019). Self-Destructing Dark Matter. JHEP 07:017.
- [6] Csáki, C. , and Lee, G. , and Lee, S. J. , and Lombardo, S. and **Telem, O.** (2019). Continuum Naturalness. JHEP 03:142.
- [7] Csáki, C. , and Hong, S. , and Shirman, Y. , and **Telem, O.** , and Terning, J. and Waterbury, M. (2021). Scattering Amplitudes for Monopoles: Pairwise Little Group and Pairwise Helicity. JHEP 08:029.
- [8] Fukuda, H. , and Manohar, A. V. , and Murayama, H. and **Telem, O.** (2021). Axion strings are superconducting. JHEP 06:052.
- [9] Csáki, C. , and Hong, S. , and Shirman, Y. , and **Telem, O.** and Terning, J. (2021). Completing Multiparticle Representations of the Poincaré Group. Phys. Rev. Lett. 127, 4: 041601.
- [10] Geller, M. and **Telem, O.** (2021). Self-destructing atomic dark matter. Phys. Rev. D 104, 3: 035010.
- [11] Csáki, C. , and Murayama, H. and **Telem, O.** (2021). Some Exact Results in Chiral Gauge Theories. Phys.Rev.D 104 (2021) 6, 065018.

[12] Csáki, C. , and Gomes, A. , and Murayama, H. and **Telem, O.** (2021). Demonstration of Confinement and Chiral Symmetry Breaking in $SO(N_c)$ Gauge Theories. Phys. Rev. Lett. 127, (2021) 25: 251602.

[13] Csáki, C. , and Gomes, A. , and Murayama, H. and **Telem, O.** (2021). The Phases of Non-supersymmetric Gauge Theories: the $SO(N_c)$ Case Study. Phys.Rev.D 104 (2021) 11, 1140018.

[14] Csáki, C. , and Murayama, H. and **Telem, O.** (2021) More Exact Results on Chiral Gauge Theories: The Case of the Symmetric Tensor. Phys.Rev.D 105 (2022) 4, 045007

[15] Kol, U. , and O’Connell, D. and **Telem, O.** (2021). The Radial Action from Probe Amplitudes to All Orders. JHEP 03 (2022) 141

PUBLICATIONS UNDER REVIEW

[1] Csáki, C. , and Shirman, Y. , and **Telem, O.** and Terning, J. (2021). Monopoles Entangle Fermions. arXiv:2109.01145. Submitted to Phys. Rev. Lett.

[2] Csáki, C. , and Dong, Z.-Y. , and **Telem, O.** , and Terning, J. , and Yankielowicz, S. (2022). Dressed vs. Pairwise States, and the Geometric Phase of Monopoles and Charges. arXiv:2209.03369.

INVITED TALKS

[1] 2022 – Phase Transitions and Topological Defects Workshop, CMSA, Harvard, and MIT, Cambridge, MA.

Title: “**Pairwise States = Dressed States**”

[2] 2022 – 4D Seminar, The University of California, Berkeley, CA.

Title: “**Regulating Point Masses as Classical Fields**”

[3] 2022 – Particle Seminar, New York University, NY.

Title: “**The Electric-Magnetic S-matrix and Monopole Catalysis**”

[4] 2022 – The University of California, Los Angeles, CA.

Title: **“Regulating Point Masses as Classical Fields”**

[5] 2021 – Tel Aviv University, Tel Aviv, Israel.

Title: **“The Electric-Magnetic S-matrix and Monopole Catalysis”**

[6] 2021 – Tel Aviv University, Tel Aviv, Israel.

Title: **“Confinement and Chiral Symmetry Breaking in Near-SUSY Theories”**

[7] 2021 – The Weizmann Institute, Rehovot, Israel.

Title: **“Regulating Point Masses as Classical Fields”**

[8] 2021 – The Weizmann Institute, Rehovot, Israel.

Title: **“The Electric-Magnetic S-matrix and Monopole Catalysis”**

[9] 2021 – The Weizmann Institute, Rehovot, Israel.

Title: **“Confinement and Chiral Symmetry Breaking in Near-SUSY Theories”**

[10] 2021 – The Hebrew University of Jerusalem, Jerusalem, Israel.

Title: **“Confinement and Chiral Symmetry Breaking in Near-SUSY Theories”**

[11] 2021 – Technion - Israel Institute of Technology, Haifa, Israel.

Title: **“Confinement and Chiral Symmetry Breaking in Near-SUSY Theories”**

[12] 2021 – IAS Amplitudes Meeting, Institute for Advanced Studies, Princeton, NJ.

Title: **“Monopole Catalysis From Scattering Amplitudes”**

[13] 2021 – NHETC Seminar, Rutgers, NJ.

Title: **“Monopole Catalysis From Scattering Amplitudes”**

- [14] 2021 – High Energy Physics Seminar, University of California, San Deigo, CA.
Title: **“Monopole Catalysis From Scattering Amplitudes”**
- [15] 2021 – Quantum Matter in Mathematics and Physics Seminar given at the Harvard Center of Mathematical Sciences and Applications, Boston, MA.
Title: **“More Exact Results in Gauge Theory: Confinement and Chiral Symmetry Breaking”**
- [16] 2021 – **Plenary talk** at the 23rd International Conference From the Planck scale to the Electroweak Scale (Planck 2021), Durham, England.
Title: **“Amplitudes for Monopoles”**
- [17] 2021 – TUM theoretical HEP seminar, Munchen, Germany.
Title: **“Towards Black Hole Scattering from Quantum Phase Shifts”**
- [18] 2021 – Tel Aviv University particle physics seminar, Tel-Aviv, Israel.
Title: **“Towards Black Hole Scattering from Quantum Phase Shifts”**
- [19] 2021 – UC Berkeley 4D Seminar, Berkeley, California.
Title: **“Towards Black Hole Scattering from Quantum Phase Shifts”**
- [20] 2021 – TRIUMF theory department seminar, TRIUMF, Vancouver, BC, Canada.
Title: **“Amplitudes for Monopoles”**
- [21] 2021 – MIT Nuclear and Particle Theory Seminar, MIT, Cambridge, MA.
Title: **“Amplitudes for Monopoles”**
- [22] 2021 – CAmplitudes workshop, CA.
Title: **“Amplitudes for Monopoles and All-Order Classical Scattering”**
- [23] 2021 – **Plenary talk** at PANDEMIC particle physics seminar.
Title: **“Amplitudes for Monopoles”**

- [24] 2021 – Joint Lepp String/Pheno Seminar, Cornell University, NY.
Title: **“Amplitudes for Monopoles”**
- [25] 2021 – High Energy Seminar, University of Florida, FA.
Title: **“Amplitudes for Monopoles”**
- [26] 2021 – Particle Physics Theory Seminar, University of Edinburgh, UK.
Title: **“Amplitudes for Monopoles”**
- [27] 2021 - Israeli Joint Particle Physics Seminar, the Weizmann Institute, Rehovot, Israel.
Title: **“Amplitudes for Monopoles”**
- [28] 2021 – UC Davis Joint Seminar, Davis, California.
Title: **“Amplitudes for Monopoles”**
- [29] 2020 – SITP, Stanford University, Stanford, California.
Title: **“Axion Strings are Superconducting”**
- [30] 2020 - Harvard lunch seminar, Harvard, Cambridge, MA.
Title: **“The Electric-Magnetic S-Matrix”**
- [31] 2020 - CERN Axion Workshop, CERN, Switzerland.
Title: **“Axion Strings are Superconducting”**
- [32] 2020 - CERN TH BSM Forum, CERN, Switzerland.
Title: **“Amplitudes for Monopoles”**
- [33] 2020 – ASU Cosmology Seminar, Arizona State University, Arizona.
Title: **“Axion Strings are Superconducting”**
- [34] 2020 – UMD EPT Seminar, the University of Maryland at College Park, Maryland.

Title: **“Amplitudes for Monopoles”**

[35] 2020 – APEC Seminar, IPMU, Tokyo, Japan.

Title: **“Amplitudes for Monopoles”**

[36] 2020 – LBL Particle Physics Seminar, Lawrence Berkeley National Lab, Berkeley, California.

Title: **“Amplitudes for Monopoles”**

[37] 2020 – SLAC, Stanford, California.

Title: **“Amplitudes for Monopoles”**

[38] 2020 – SITP, Stanford University, Stanford, California.

Title: **“Atomic Rearrangement for Self-Destructing Dark Matter”**

[39] 2019 – UC Davis, Davis, California.

Title: **“Anomalies in an EFT: the On-Shell Way”**

[40] 2019 – UC Berkeley 4D Seminar, Berkeley, California.

Title: **“Anomalies in an EFT: the On-Shell Way”**

[41] 2018 – LBL Particle Physics Seminar, Lawrence Berkeley National Lab, Berkeley, California.

Title: **“Continuum Naturalness”**

[42] 2018 – Israeli Joint Particle Physics Seminar, the Weizmann Institute, Rehovot, Israel.

Title: **“Continuum Naturalness”**

[43] 2018 – University of Maryland, College Park, MD.

Title: **“Self-Destructing Dark Matter”**

- [44] 2018 – University of Toronto, Canada.
Title: **“Self-Destructing Dark Matter”**
- [45] 2016 – Theory Seminar, Cornell University, NY.
Title: **“The Flavor of the Composite Twin Higgs”**
- [46] 2016 – UMD Hidden Naturalness Workshop, University of Maryland, MD.
Title: **“The Flavor of the Composite Twin Higgs”**

CONTRIBUTED TALKS

- [1] 2020 – Presentation at Berkeley week @ IPMU , IPMU, Tokyo, Japan.
Title: **“Anomalies in an EFT: the On-Shell Way”**
- [2] 2018 – Phenomenology 2018 Conference, the University of Pittsburgh, PA.
Title: **“Self-Destructing Dark Matter”**
- [3] 2017 – Phenomenology 2017 Conference, the University of Pittsburgh, PA.
Title: **“A Collective Quartic for the Composite Higgs from Warped 6D”**
- [4] 2015 – Supersymmetry 2015 conference, Lake Tahoe, California.
Title: **“The Holographic Twin Higgs”**
- [5] 2015 – 5th Quantum universe I-Core meeting at Tel Aviv University.
Title: **“The Composite Twin Higgs”**
- [6] 2014 – Cargèse International School for Theoretical Particle Physics.
Title: **“Flavor Textures from a Gauged Flavor Symmetry”**

CONFERENCES ORGANIZED

- [1] 2017 – The Johns Hopkins Workshop Series on Current Problems in Particle Theory: “Beyond the Standard Model – Exploring the Frontier” - Budapest, Hungary

CONFERENCES AND WORKSHOPS ATTENDED

- [1] 2021 – Aspen Summer Workshop: Dark Matter from the Laboratory to the Cosmos
Aspen, Colorado

- [2] 2021 – The 23rd International Conference From the Planck scale to the Electroweak Scale (Planck 2021)
Durham, England

- [3] 2021 – California Amplitudes Workshop
UCLA and SLAC, California

- [4] 2020 – Zoomplitudes 2020 Conference
Brown University, Providence, Rhode Island

- [5] 2020 – Berkeley Week at IPMU
IPMU, University of Tokyo, Japan

- [6] 2018 – Phenomenology 2018
University of Pittsburgh, PA

- [7] 2017 – Workshop at the Mainz Institute for Theoretical Physics: “The TeV Scale: A Threshold to New Physics?”
Mainz Institute for Theoretical Physics, Germany

- [8] 2017 – Phenomenology 2017
University of Pittsburgh, PA

- [9] 2017 – GGI Lectures on the Theory of Fundamental Interactions,
Galileo Galilei Institute for Theoretical Physics, Florence, Italy

- [10] 2016 – Theoretical Advanced Study Institute in Particle Theory (TASI) 2016: “Anticipating the Next Discoveries in Particle Physics”
University of Boulder, CO

- [11] 2016 – UMD Hidden Naturalness Workshop
University of Maryland, College Park, MD

- [12] 2015 – Supersymmetry 2015
Lake Tahoe, California

- [13] 2015 – Beyond WIMPs, from Theory to Detection
Kibbutz HaGoshrim, Israel

- [14] 2015 – CERN - CKC TH Institute on Neutral Naturalness
CERN, Geneva, Switzerland

- [15] 2014 – Cargèse International School for Theoretical Particle Physics
Cargèse, Corsica, France

- [16] 2014 – Exotic Physics with ATLAS at 14 TeV
Kibbutz Eilot, Israel

- [17] 2013 – Supersymmetry 2013
Trieste, Italy

- [18] 2011 – The 29th Jerusalem Winter School in Theoretical Physics:
Current Trends in Particle Physics and Cosmology
Jerusalem, Israel

- [19] 2011 – Flavor Physics and CP Violation
Kibbutz Maale Hachamisha, Israel