# Soner Albayrak

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#### ACADEMIC POSITIONS

University of Amsterdam, Amsterdam, Netherlands
Onderzoeker (Researcher)

Contact: Daniel Baumann)

#### Academic and Professional Preparation

#### Yale University, New Haven, CT

2016-2021

Doctor of Philosophy in Physics (Advisor: David Poland)

Dissertation title: Analytical Studies in the Fermion Conformal Bootstrap

Master of Philosophy in Physics Master of Science in Physics

#### California Institute of Technology, Pasadena, CA

2018-2019

Visiting Student Researcher (Host: David Simmons Duffin)

Simons Bootstrap Collaboration Graduate Student Exchange

#### Middle East Technical University, Ankara, Turkey

2008-2016

Master of Science in Physics (Advisor: İsmail Turan)

Thesis: A Lorentz Violating Theory: Its Nonminimal Extension in the Photon Sector

Bachelor of Science in Physics

Bachelor of Science in Electrical & Electronics Engineering

#### PEER REVIEWED PUBLICATIONS

- **S. Albayrak**, Rajeev Erramilli, Zhijin Li, David Poland and Yuan Xin, *Bootstrapping*  $N_f = 4$  *conformal*  $QED_3$ , arXiv:2112.02106 (accepted to Phys.Rev.D)
- **S. Albayrak**, S. Kharel and D. Meltzer, On duality of color and kinematics in (A)dS momentum space, JHEP 03 (2021) 249
- **S. Albayrak**, C. Chowdhury and S. Kharel, On loop celestial amplitudes for gauge theory and gravity, Phys.Rev.D 102 (2020)
- **S. Albayrak** and S. Kharel, *Spinning loop amplitudes in Anti-de Sitter space*, Phys.Rev.D 103 (2021) 2
- **S. Albayrak**, D. Meltzer and D. Poland, *The Inversion Formula and 6j Symbol for 3d Fermions*, JHEP 09 (2020) 148
- **S. Albayrak**, C. Chowdhury and S. Kharel, *Study of momentum space scalar amplitudes in AdS spacetime*, Phys.Rev.D 101 (2020) 12
- **S. Albayrak** and S. Kharel, *Towards the higher point holographic momentum space amplitudes. Part II. Gravitons*, JHEP 12 (2019) 135
- **S. Albayrak**, C. Chowdhury and S. Kharel, *New relation for Witten diagrams*, JHEP 10 (2019) 274

- **S. Albayrak**, D. Meltzer and D. Poland, *More Analytic Bootstrap: Nonperturbative Effects and Fermions*, JHEP 08 (2019) 040
- **S. Albayrak** and S. Kharel, *Towards the higher point holographic momentum space amplitudes*, JHEP 02 (2019) 040

### CURRENT RESEARCH INTERESTS

Conformal bootstrap	AdS/CFT
Cosmological bootstrap	Scattering amplitudes

# Conferences & Presentations

Boundaries and Defects in CFT and Holography, online school	Mar 2022
ICTP – School on Superstring Theory and Related Topics, online school	Oct 2021
University of Amsterdam String Theory Journal Club Talk: Fermions in CFTs: The Analytic Bootstrap Approach	Oct 2021
International Society for Quantum Gravity, online meeting	Oct 2021
All Lambdas Holography @ Prague, online workshop	Oct 2021
ATITPhysics 2021, online school Lecture Series: Conformal Symmetry in Field Theories	Sep 2021
Bootstrap 2021, online conference	Jul 2021
19 <sup>th</sup> Workshop on Quantization, Dualities and Integrable Systems Talk: Fermions in CFTs: The Analytic Bootstrap Approach	Apr 2021
THK University, online seminar Invited Talk: Simetriler: Niçin evrenimiz böyle?	Mar 2021
Porto University, online seminar Invited Talk: On Witten diagrams in momentum space	Feb 2021
Bootstrap 2020, online conference	Jun 2020
Middle East Technical University, online seminar Invited Talk: Recent Developments in Conformal Bootstrap	Nov 2020
Zoomplitudes 2020, online conference	May 2020
Online seminar series in theoretical physics in Turkey Talk: Recent Developments in Conformal Bootstrap	May 2020
Developments in the Numerical Bootstrap, SCGP-Stony Brook	Nov 2019
Bootstrap 2019, Perimeter Institute	Jul 2019
Bootstrap 2018, California Institute of Technology	Jul 2018
Analytic approaches to the bootstrap, Azores	May 2018
Particle theory group student talk: On Wess-Zumino-Witten model, Yale	Mar 2018
Signals for Nonminimal Lorentz and CPT Violation, IUCSS Poster presentation: CPT-odd Photon in Vacuum-Orthogonal Model	Jun 2015

Ankara High Energy Physics Days, METU Talk: CPT Violating QED and Beyond	Feb 2015
Recent Developments in High Energy Physics, METU	May 2013
Awards and Scholarships	
National Graduate Study Scholarship by Scientific and Technological Research Council of Turkey	2014
Graduate Courses Performance Award by Middle East Technical University	2014
Dean's Honor and High Honor Lists	2009-2013
Outstanding Success Scholarship's by METU, by Turkish Educational Foundation, and by Ministry of Yout	2008 h and Sports
Experience	

Teaching Assistant, Yale University	2017-2021
PHYS 181: University Physics	Spring 2018, Spring 2020, Spring 2021
PHYS 180: University Physics	Fall 2017, Fall 2019, Summer 2020, Fall 2020
PHYS 166L: General Physics Laborat	ory Spring 2017
Teaching Assistant, Middle East Techni	ical University 2014-2016
PHYS 502: Analytical Mechanics	Fall 2015, Spring 2016
PHYS 408: Particle Physics II	Spring 2015, Spring 2016
PHYS 407: Particle Physics I	Fall 2014, Fall 2015
PHYS 311: Classical Mechanics	Fall 2014, Spring 2015, Fall 2015, Spring 2016
PHYS 105 - LAB: General Physics I	Fall 2014
Intern, PROMOD R&D Software, Anka	ra Jul & Aug 2013
worked for object tracking and camera Intern, SÖKTAŞ Textile, Aydın worked in the control department	calibration problems  Aug & Sep 2012

# Other Activities

Organizer, ATITPhysics Online School Series

Advising Committee, Joint Seminar Series in Theoretical Physics (Boun&METU&UTAA)

Physics Outreach (in Turkish), Evrim Ağacı

# References

Available upon request