




Yoav Afik

Ph.D.
High-Energy Physics

Date of Birth: 27.02.1988, Israel

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Research Topics



Skills

Human Relations

ATLAS Analysis Software

MadGraph

Statistical Methods

Detector Software

Supervision

Teaching

C++, Python

Collaborations



Academic Degrees and Nominations

- 2023 - now **Postdoc Physics** Enrico Fermi Institute, University of Chicago
August 2023 - now
- 2021 - 2023 **Research Fellow** CERN
June 2021 - July 2023
- 2020 - 2021 **Postdoc Physics** Technion - Israel Institute of Technology
November 2020 - May 2021
- 2016 - 2020 **Ph.D. Physics** Technion - Israel Institute of Technology
Haifa, Israel
Thesis: "Search for Dark Matter production and $b \rightarrow sll$ anomalies with the ATLAS detector".
Advisor: Prof. Yoram Rozen
- 2014 - 2016 **M.Sc. Physics** Technion - Israel Institute of Technology
Haifa, Israel
Thesis: "Search for Dark Matter production in final states with two leptons, b-jets and missing transverse momentum in $\sqrt{s} = 13$ TeV proton-proton collisions using $13.3fb^{-1}$ of ATLAS data".
Advisor: Prof. Yoram Rozen
- 2011 - 2014 **B.Sc. Physics and Philosophy** Hebrew University of Jerusalem
Jerusalem, Israel

Research Experience

- Research Approach:** the main motives of my work are passion for fundamental physics and creativity. This is in attempt to extract the most out of the largest experimental apparatus in the world, in which I am privileged to work.
- Experiment & Theory Interaction:** my focus is on analysis and phenomenology of processes at the LHC. My work is unique in the sense that I am typically performing measurements based or related to my theory ideas.
- Physics Analysis:** I took part in a variety of physics analyses within the ATLAS collaboration, in a variety of working groups. Many of these analyses are based on phenomenological studies I took part of. I got the opportunity to lead some of these within ATLAS as an analysis coordinator. Currently, I am a convener of the Exotics Lepton+X (LPX) subgroup within ATLAS. Furthermore, I now hold an official role to support analyzers in one of the largest analysis facilities in USA.
- Theory & Phenomenology:** I strongly believe in cooperation between the experimental and theory communities. I had the chance to be a part of a few theoretical and phenomenological studies: dark matter, contact interactions, lepton flavor universality and quantum information. Those are linked directly to the experimental research I am undertaking. I believe it allows me to be in a unique position on the spectrum between experiment and theory.
- Interdisciplinary:** a few of my projects link between two fields of physics - quantum information and high-energy physics. These works are pioneering in implementing canonical quantum information techniques in high-energy systems. I have made novel and primary contributions both for theory and experiment.
- Detector Work:** I made a contribution to a variety of ATLAS systems, including Tile calorimeter calibration, Level-1 trigger software, detector operations as on-call expert and trigger simulation of the New-Small-Wheel.

Awards and Honors

- 2021 **CERN Senior Research Fellowship**
2020 **Excellence Scholarship by the Faculty of Physics at the Technion**
2017 **Daniel Foundation Excellence Scholarship**

Official Nominations

- 2024-now **Tile Calorimeter Trigger Coordinator within ATLAS**
2023-now **Convener of the Exotics Lepton+X (LPX) subgroup within ATLAS**
2019-now **Coordinator of multiple analyses within ATLAS**
2019-2020 **MC manager at the ATLAS collaboration Exotics working group**