





Dr. Marzieh Bahmani

Postdoctoral researcher

Experimental particle physicist

Humboldt University of Berlin

ATLAS experiment



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Amateur astronomy



BSc meteorology · Hormozgan



Amateur astronomy



BSc meteorology · Hormozgan



MSc astrophysics · Shiraz

Mathematics Houses and Their Impact on Mathematics Education



Amateur astronomy



BSc meteorology · Hormozgan



MSc astrophysics · Shiraz

Isfahan Mathematics House



Amateur astronomy



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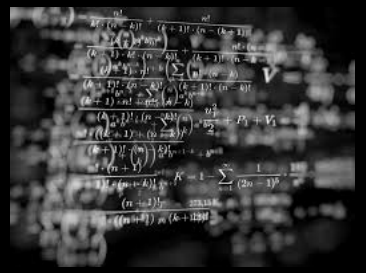
MSc astrophysics · Shiraz

Isfahan Mathematics House



Theory PhD studies · Tehran



Amateur astronomy



BSc meteorology · Hormozgan



MSc astrophysics · Shiraz

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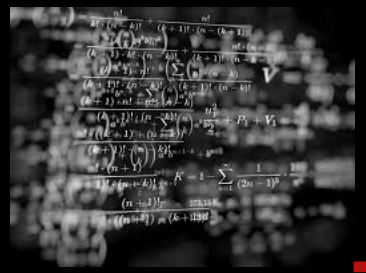

Theory PhD studies · Tehran



time



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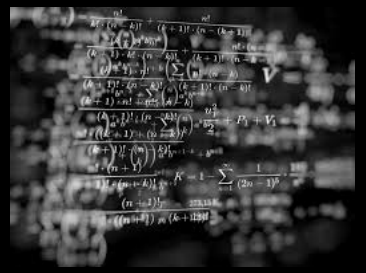


Theory PhD studies · Tehran

time

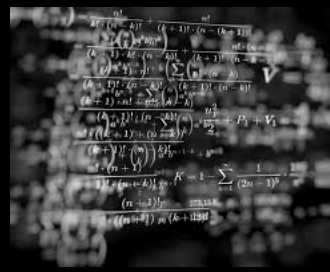
African school of fundamental physics











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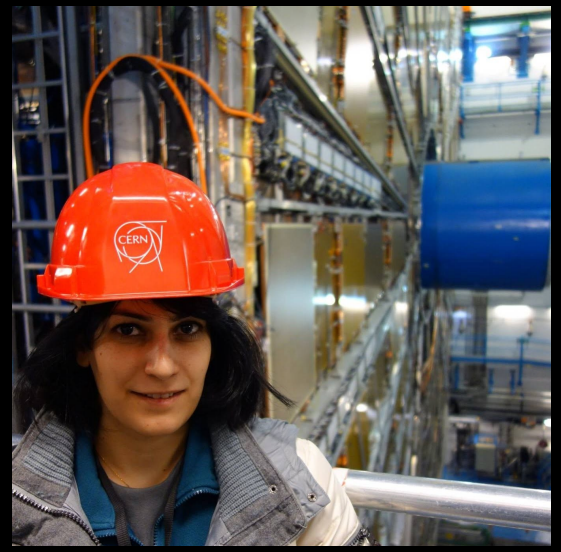
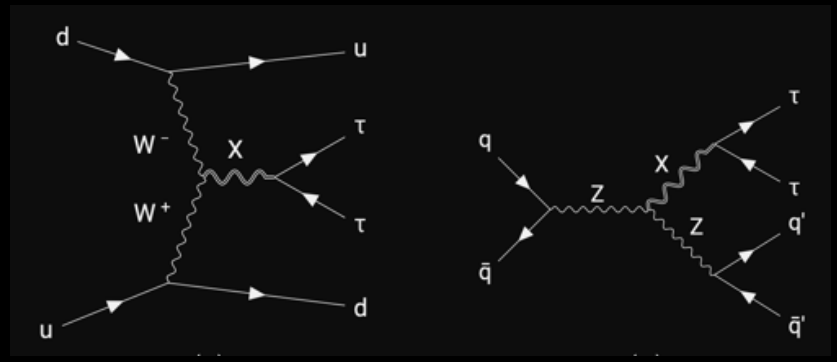
PhD at IFJ PAN Kraków 2015–2019 awarded with distinction · Marie Curie ESR

Secondments: University of Warsaw · CERN · Shell (Amsterdam)



11 international trips to 7 countries during my PhD



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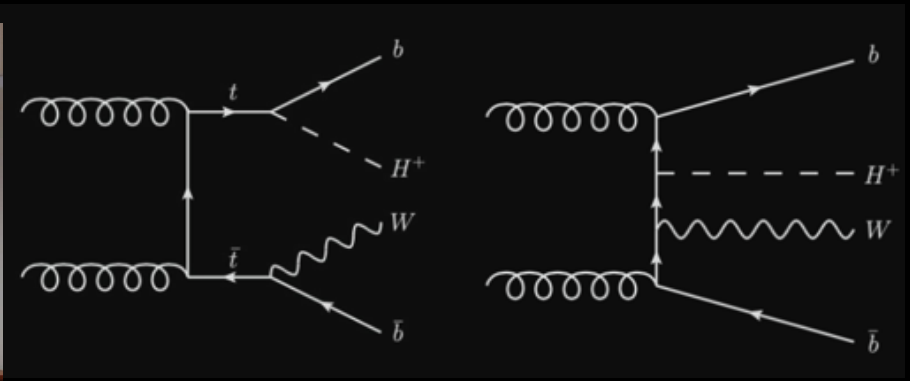

J.High Energ.Phys.(2018)2018:139

How it felt at the time



How it felt at the time



Special Tea 🫖

After the PhD

Postdoc at Warsaw University of Technology (2020)

1- phenomenology of heavy ion collision, properties of Quark Gluon Plasma (STAR Experiment)

A technique to study the elastic and inelastic interaction of quarkonium with hadrons using femtoscopic correlations



My first postdoc ended early
then a new Plan during Covid-19

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Postdoc at Humboldt University of Berlin, ATLAS (since 2021)
6-year fixed-term position

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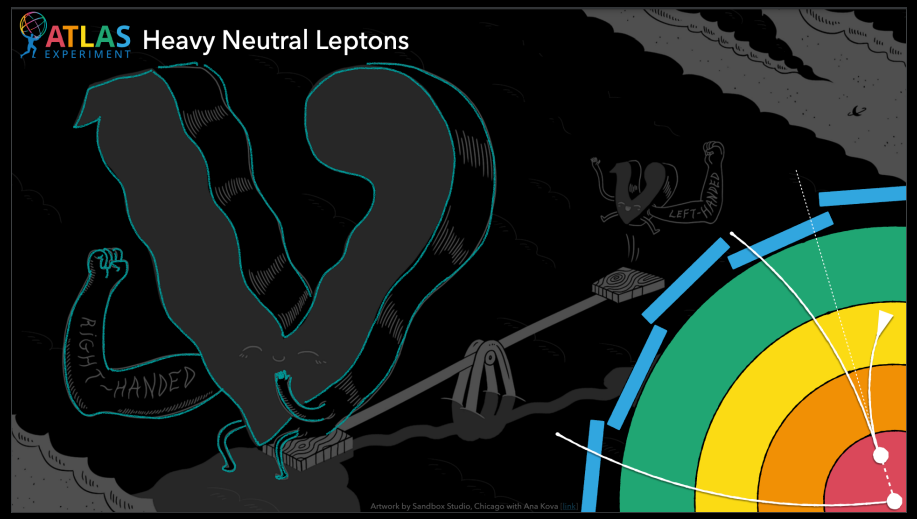
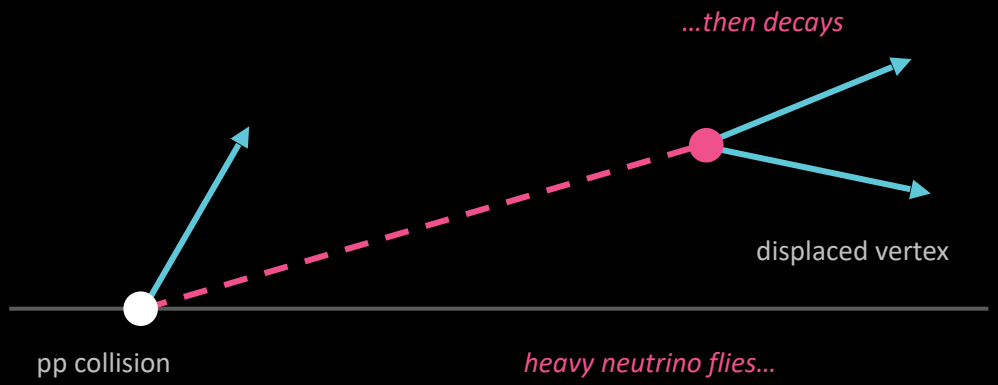


Hunting for Majorana neutrinos



Neutrinos are massless in the SM
Observation of neutrino oscillation
Shows that they have mass.

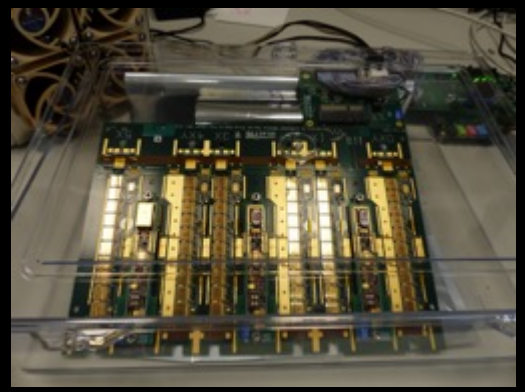
Then “Type-I seesaw:
heavy neutrinos could explain why they are so light

- Heavy neutrinos that travel before they decay
- Long-lived particles · ATLAS Exotics group
- Monte Carlo generator development
- Leading the displaced HNL team, supervising students

My interest: Phenomenology studies of HNLs, and Neutrino mass models

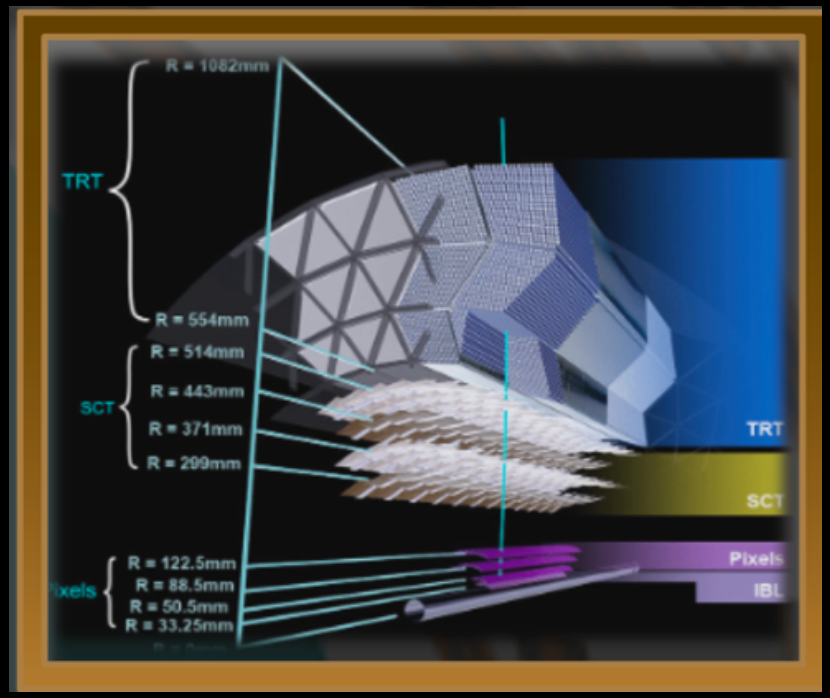
Detector upgrade





ATLAS operation

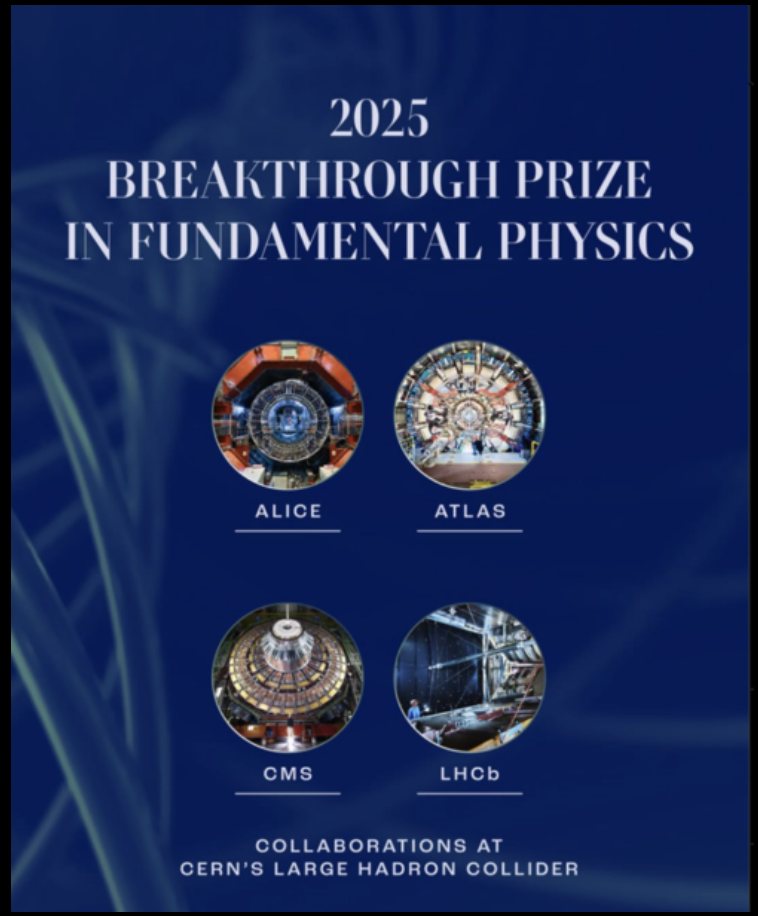




Non-Collision Background subgroup convener 2023–2026 · analysis contact for the beam-induced background paper

+ Teaching

Co-recipient, 2025 Breakthrough Prize in Fundamental Physics (as a member of the ATLAS Collaboratio



Next step: building my own research line

Applying for independent funding

DFG Heisenberg

Five-year fellowship on the path to a professorship

DFG research grants

Project funding for my own research line

Marie Skłodowska-Curie

European fellowship for mobility and new skills

Goal

Lead a group on long-lived particle searches toward the HL-LHC, and stay involved in the ITk upgrade



Four things I learned on the way

1 Changing fields is not starting over

Meteorology → astrophysics → theory → experiment: nothing I learned was wasted.

2 Every opportunity is a chance to expand your horizon

A school in Dakar and secondments at CERN and Shell shaped my path more than any plan.

3 Ask for responsibility early

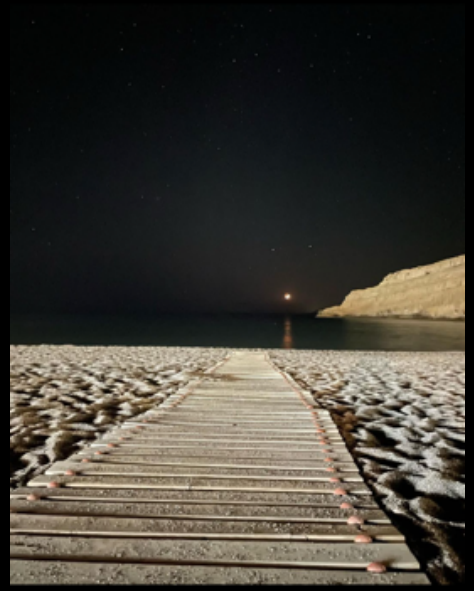
Shifts, convener roles and mentoring taught me as much as the physics.

4 Setbacks are not the end of the road

When my first postdoc ended early, having a plan B (and C) kept me moving.

Life beyond physics



















Thank you · Dziękuję

