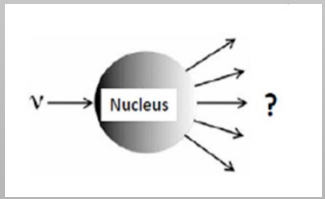
The Intense MidTerm Review

Nov 2022, Pisa, Italy



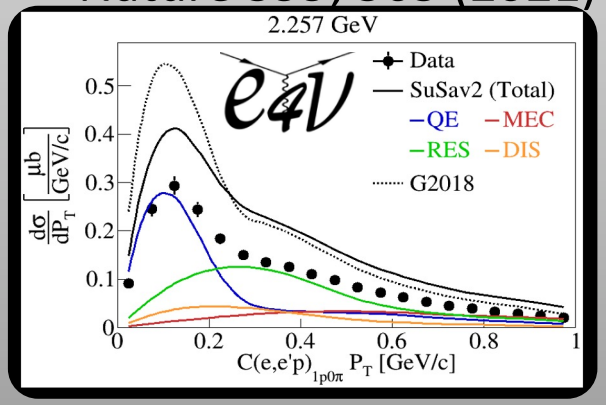
Eli Piasetzky Tel Aviv University, Israel

Nuclear Physics for Precision ν-Oscillations

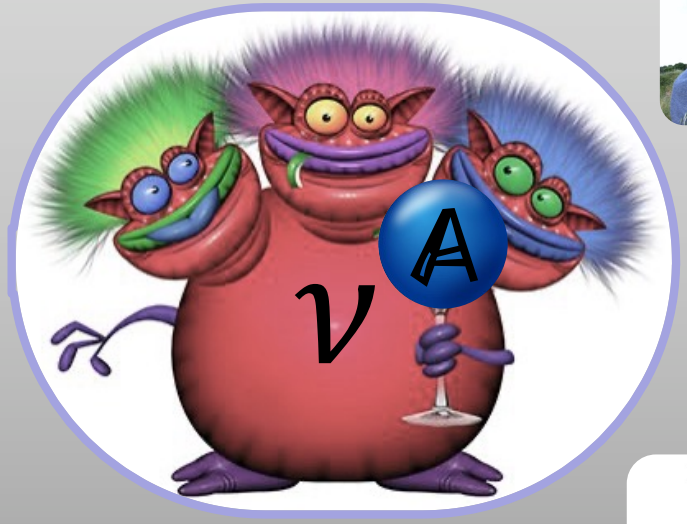
e-scattering



Nature 599, 565 (2021)



Simulations



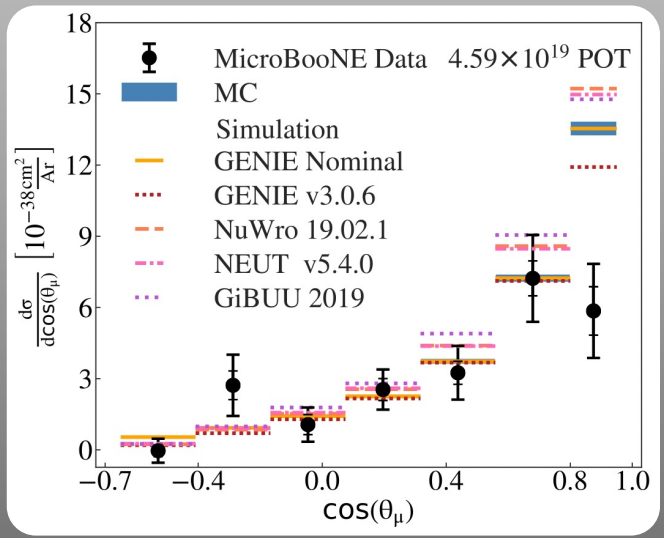
ν-scattering

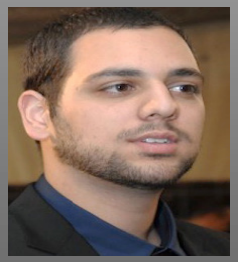
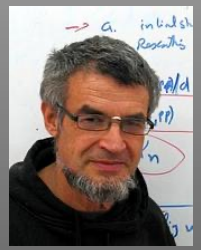


PRL 125, 201803 (2020)

EPJ C 79, 673 (2019)

μBooNE

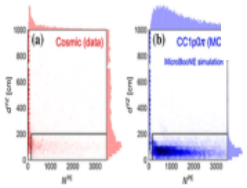


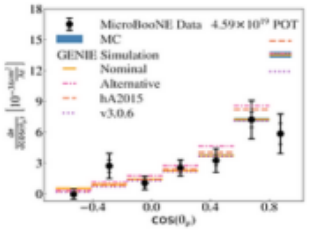
Experimental Activities by TAU group

TEL AVIV UNIVERSITY

Neutrino-nucleus scattering with the MicroBooNE detector at FNAL



Rejecting cosmic background for exclusive neutrino interaction studies with Liquid Argon TPCs; a case study with the MicroBooNE detector
C. Adams et al. (MicroBooNE Collaboration)
Eur. Phys. J. C **79**, 673 (2019). arXiv: 1812.05679



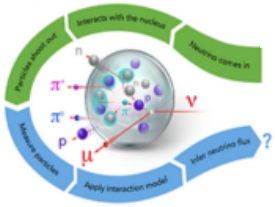
First measurement of differential charged current quasielastic–like νμ–argon scattering cross-sections using the MicroBooNE detector
P. Abratenko et al. (MicroBooNE Collaboration)
Phys. Rev. Lett. **125**, 201803 (2020). arXiv: 2006.00108

These publications are based on work done by the TAU group members

Experimental Activities by TAU group

TEL AVIV UNIVERSITY

Improving procedures for neutrino beam energy reconstruction



Electron Beam Energy Reconstruction for Neutrino Oscillation Measurements

M. Khachatryan, A. Papadopoulou, and A. Ashkenazi et al. (CLAS and e4nu collaborations)

Nature **599**, 565 (2021).

This publications is based on work done by the TAU group members

Neutrino Physics at TAU

TEL AVIV UNIVERSITY

We hire a new young faculty member that work on neutrino reaserch

Adi Ashkenazi
adishka@tauex.tau.ac.il

TEL AVIV UNIVERSITY

Summary

TEL AVIV UNIVERSITY

We measure, analyzed and published:

*** Cross Sections from MicroBoone.**
*** Electron scattering data from CLAS to constrain neutrino data.**

We strengthened the TAU group.

Plans for 2023/4

.We plan to focus on analysis of the wide phase space electron scattering date from the recent CLAS12 experiment and use it to constrain models relevant for Neutrino Oscillations Physics.

Secondments:

MIT	8M
JLAB	6M
FNAL	2M