

Experimental Astro-Particle Physics @Weizmann

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מכון ויצמן למדע

WEIZMANN INSTITUTE OF SCIENCE



جامعة نيويورك أبوظبي



NYU | ABU DHABI

The group!

- 1 Active PI (Budnik)
- 1 Emeritus – PI for DARWIN (Breskin)
- 2 Senior Staff Scientists (Levinson, Landsman)
- 2 former PIs (Gross, Duchovni)
- The late Daniel Lellouch



The Budnik Group

- Seniors: Lorne, Hagar
- Tech: David
- PostDocs: Peter, Gonzalo, Pavel
- Ph.D. Students: Yossi, Gera, Micha

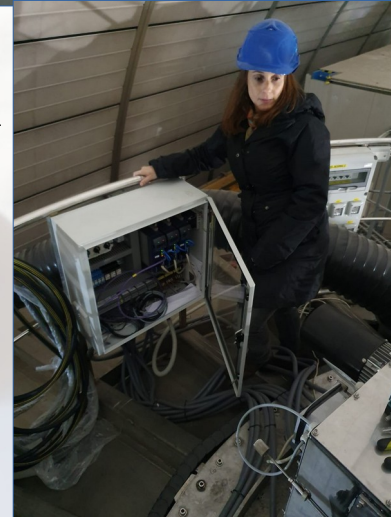
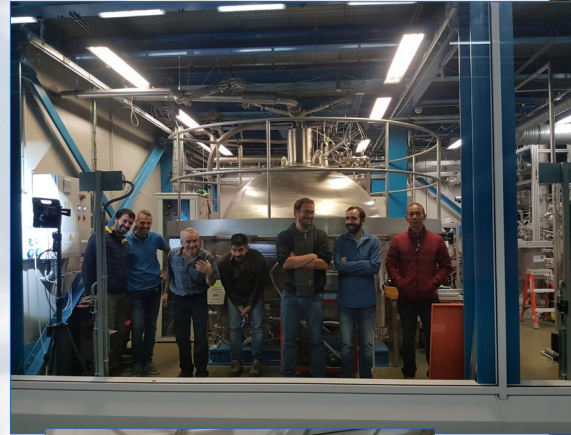


What do we do?

- **XENON**
 - Hardware: Slow Control, Calibration, PMTs, WT
 - Statistical analysis
 - Other analyses: EFT, iDM, inelastic DM, axions, MC...
 -
- **DARWIN**
 - Studies of LXe properties for future apps (DireXeno)
- **Future Tech**
 - Color Center detectors for LDM

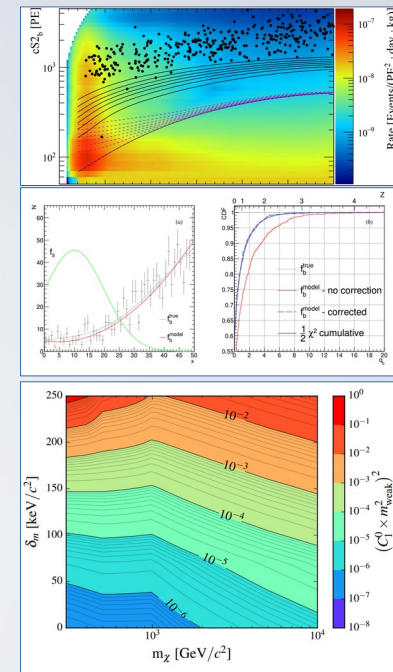
XENON activities

- **Slow Control: From A to Z**
 - Defining
 - Hardware
 - Coding
 - Improvements
- **Calibration**
 - External γ and n sources
 - DD double scatters with collimated beam
 - Low energy NRs with ^{88}YBe
 - Dedicated calibration for n-Veto
- **PMTs**
 - Purchase and testing (w/ Stockholm)
 - Installation and dark tests on site



XENON analysis

- Statistical Interpretation
 - Gross and Vitells started – other march on
 - Co-leading the efforts with the XePhyr program
- Dedicated analyses:
 - EFT, iDM, axion searches and more
- Currently evolving:
 - Modeling of backgrounds
 - Monte Carlo



Local ventures

- Lowering the DM mass:

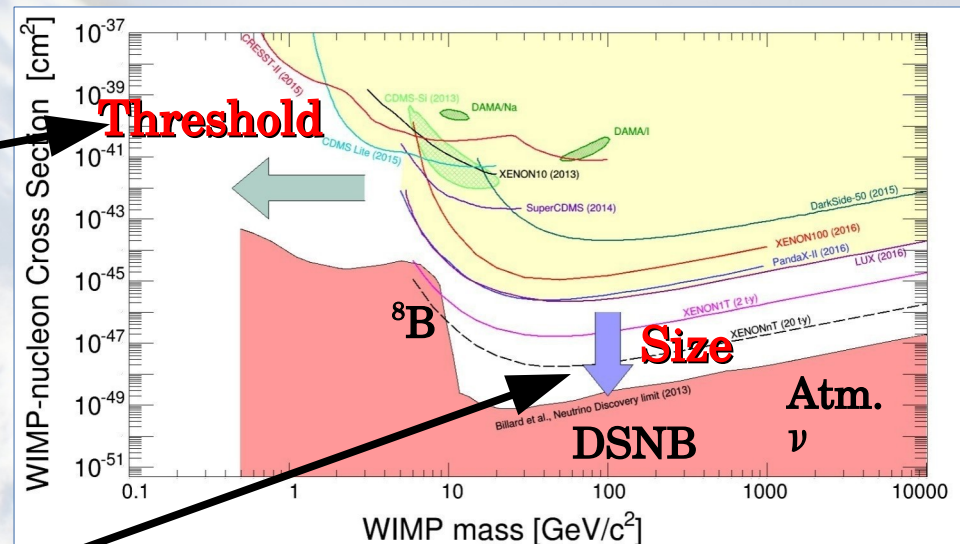
- A novel idea for finding DM-nucleus interaction with bond-breaking

Gonzalo's talk

- Lowering the cross section:

- The DARWIN project
- Novel probes with LXe for future detectors

Gera's talk



Summary

- Our group is focused mostly on Dark Matter Direct Detection, with the XENON experiments and future tech
- We are excited to come closer to our long time friends working in NYUAD!

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