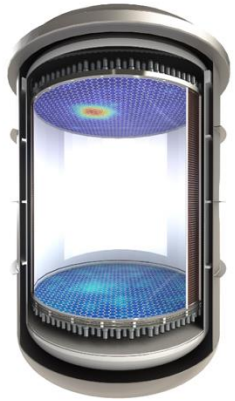
# MOTION — Enabling Next-Generation XLZD Dark Matter Searches

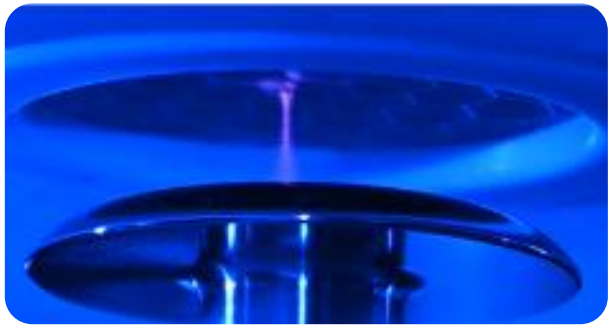
**Dark Matter**
WIMPs
Sub-GeV
Inelastic
Axion-like particles
Planck mass
Dark photons

**Neutrino nature**
Neutrinoless double beta decay
Neutrino magnetic moment
Double electron capture



**Supernovae**
Early alert
Supernova neutrinos
Multi-messenger astrophysics

**Sun**
pp neutrinos
Solar metallicity
$^{7}$Be, $^{8}$B, hep



- Bulk LXe breakdown: **~1 MV/cm**
- Observed breakdown: **70-150 kV/cm**

## Motion: a dedicated testbed

- Light
- Current/deposited energy
- Bubbling, arc discharge
- Electronegative purity
- Liquid level
- Pressure and temperature

- Electrical field simulations
- Custom HV feedthrough
- Electrode surface studies

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