Listening for dark matter

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King's College London

Gong Talk, YTF 2023, IPPP Durham

What do we know?

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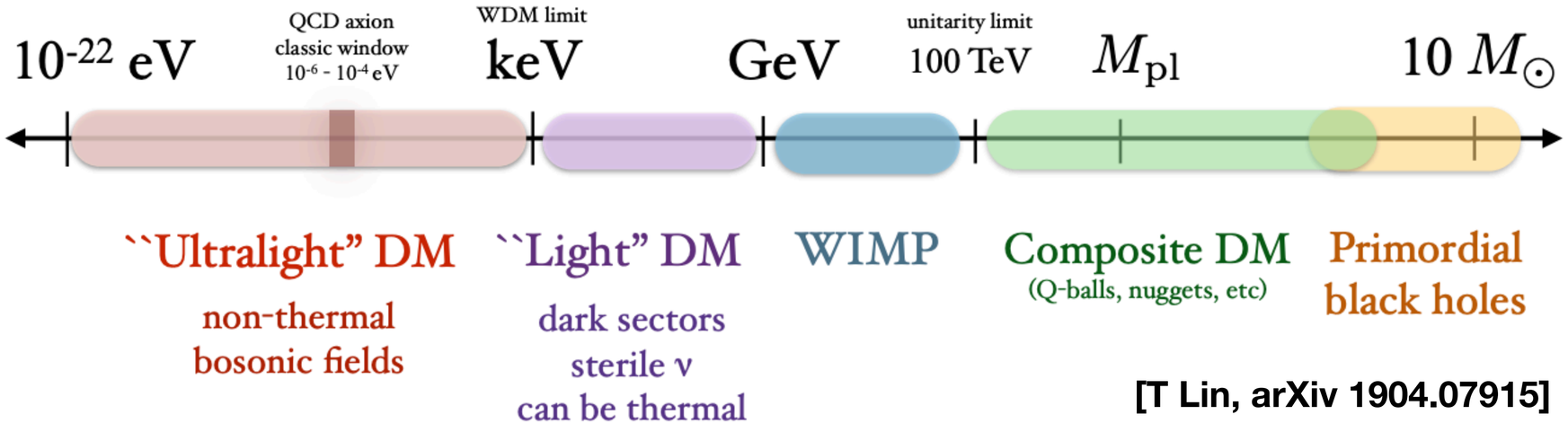

[T Lin, arXiv 1904.07915]

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Experiment with **higher exposure required** to constrain **same cross section**

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  - R_χ encodes the macro geometry (from being constituent DM) and absorbs any short range interaction - correction to the geometric radius

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Energy Deposition Density

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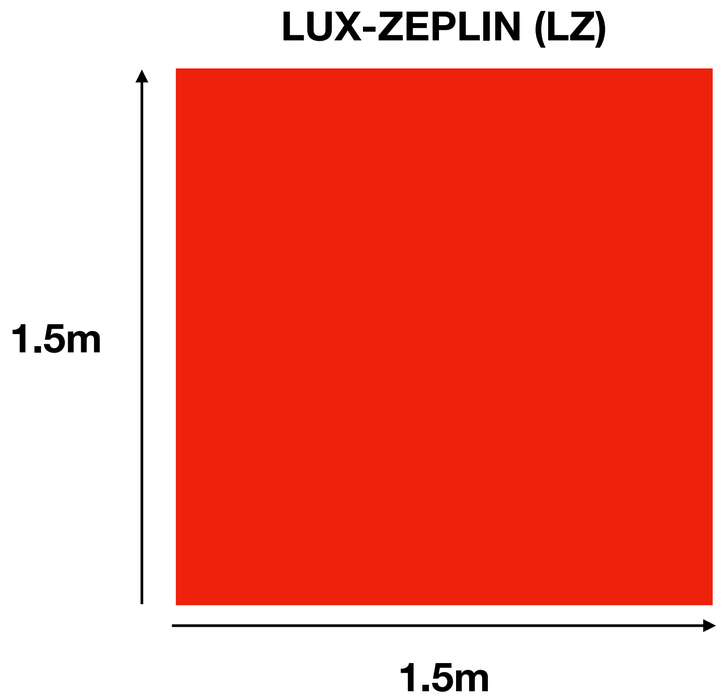
Thermoacoustic Heating (meat of calculation)

$$P(\mathbf{r}, t)$$


LUX-ZEPLIN (LZ)
1.5m
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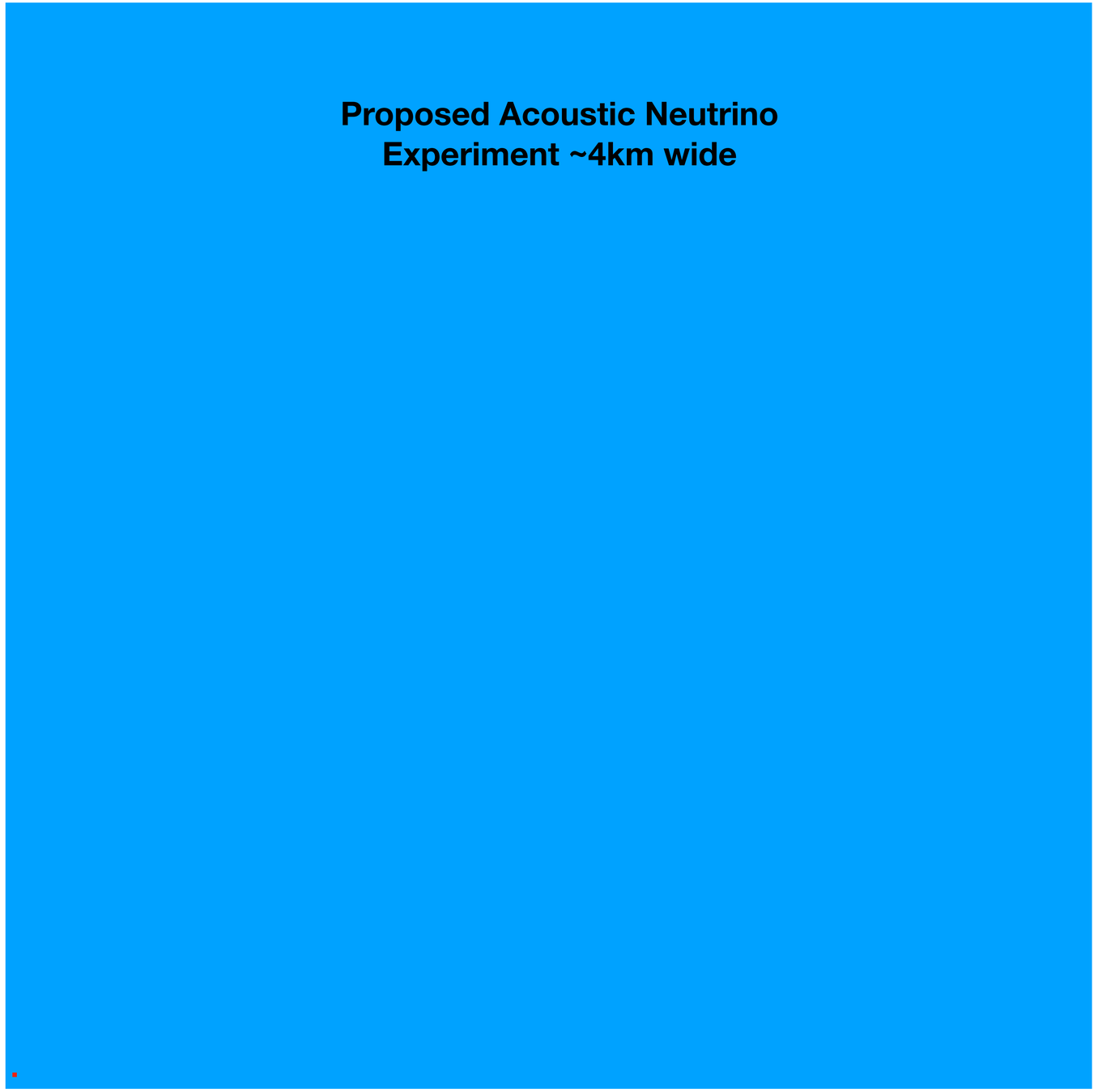
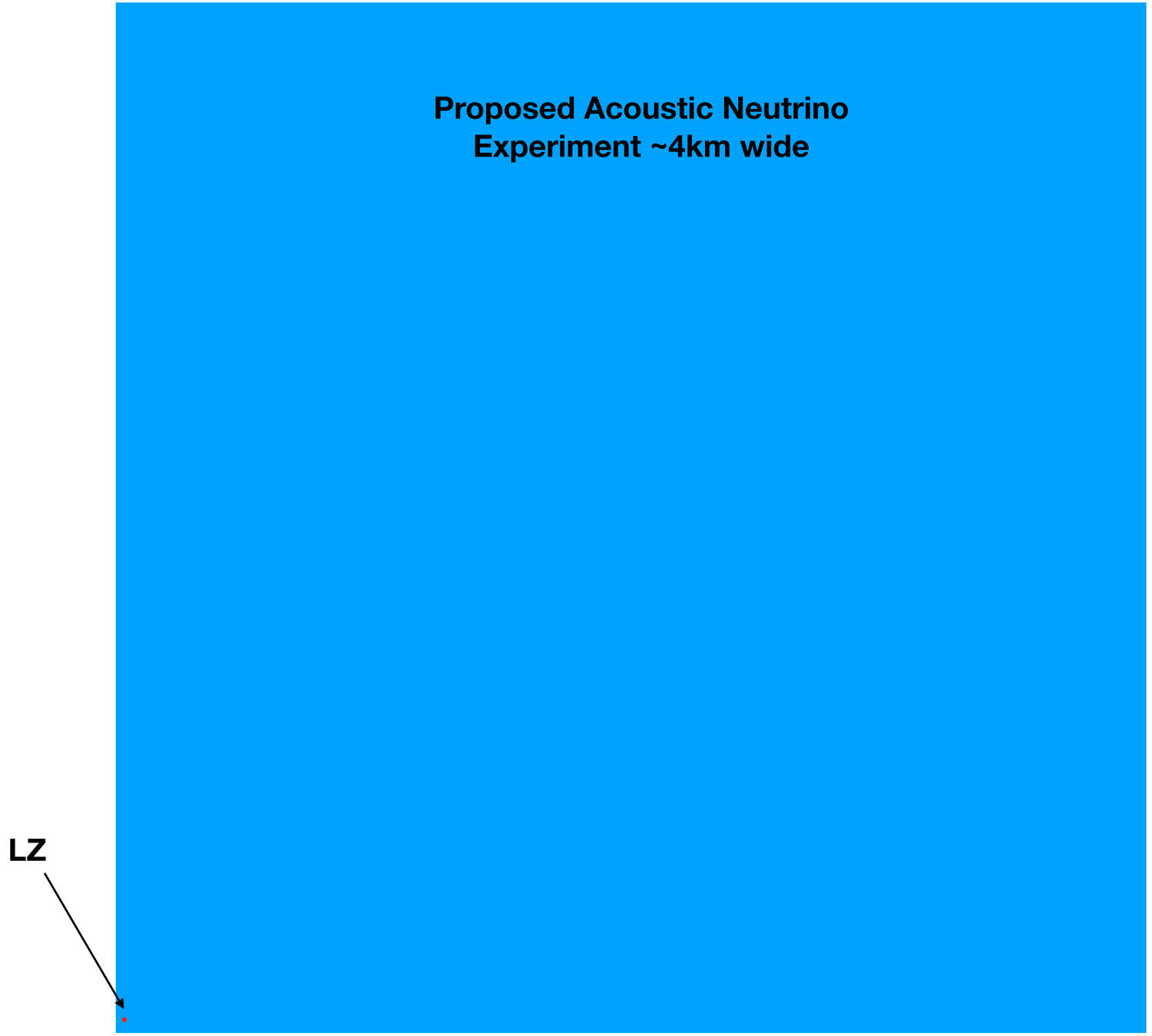

Proposed Acoustic Neutrino
Experiment ~4km wide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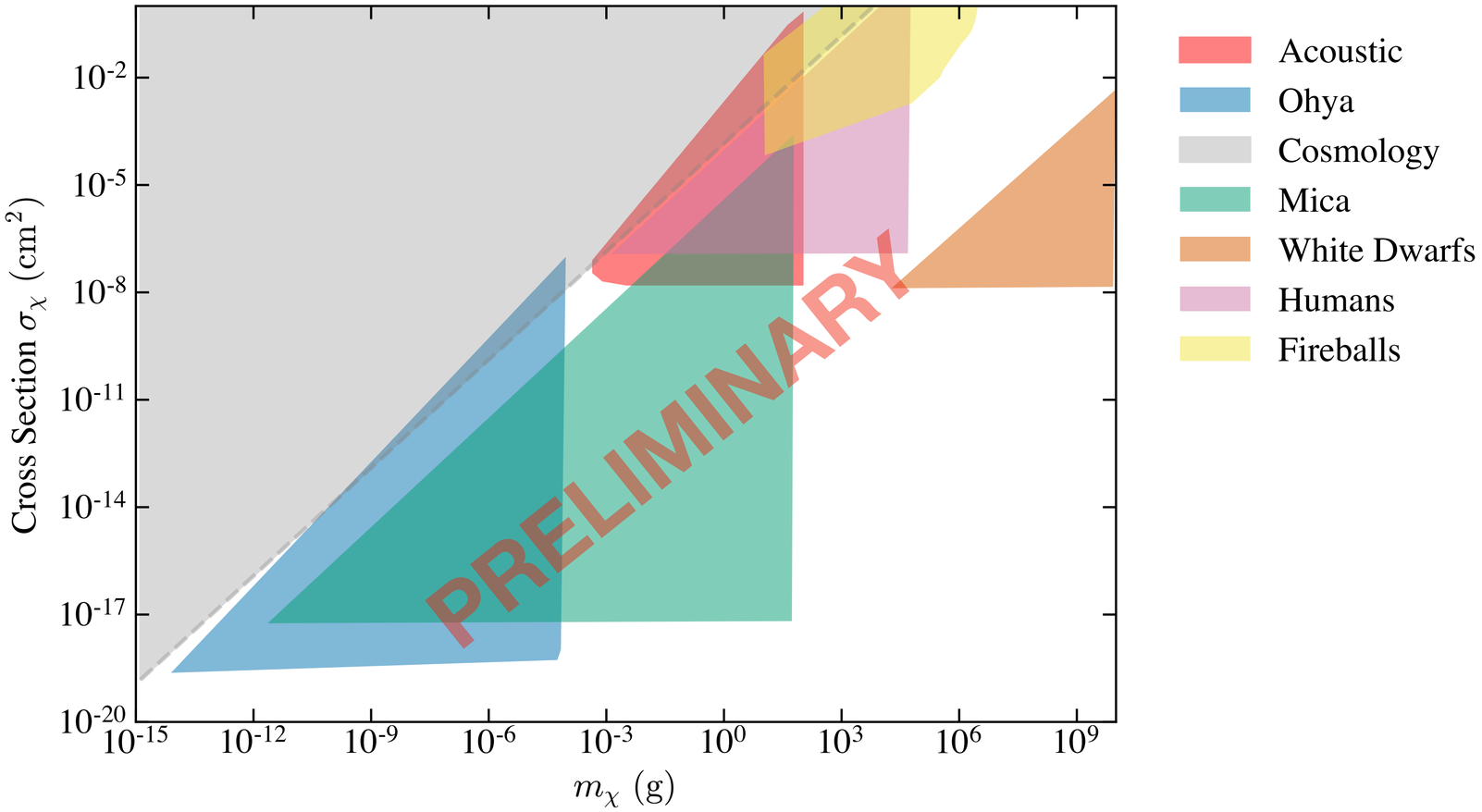

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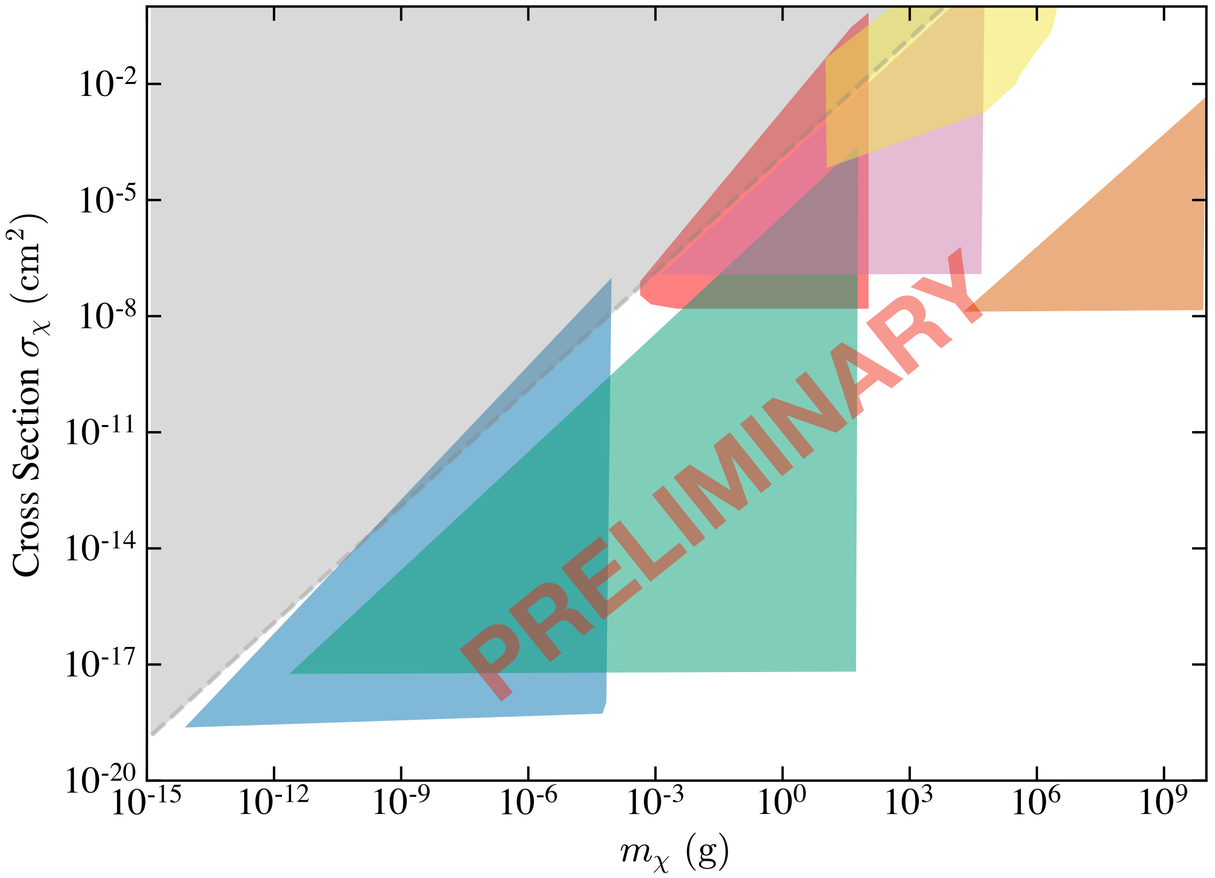

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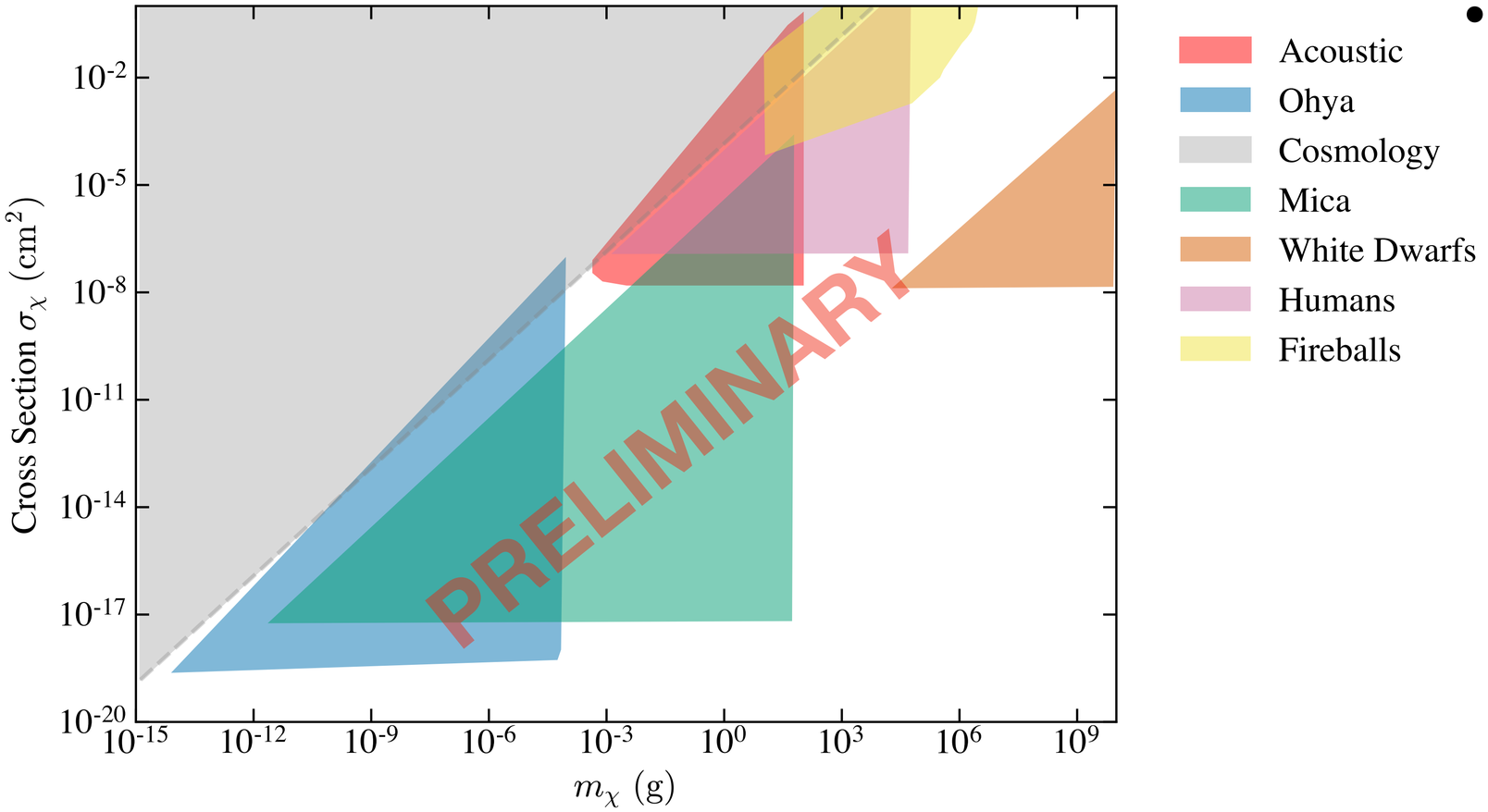

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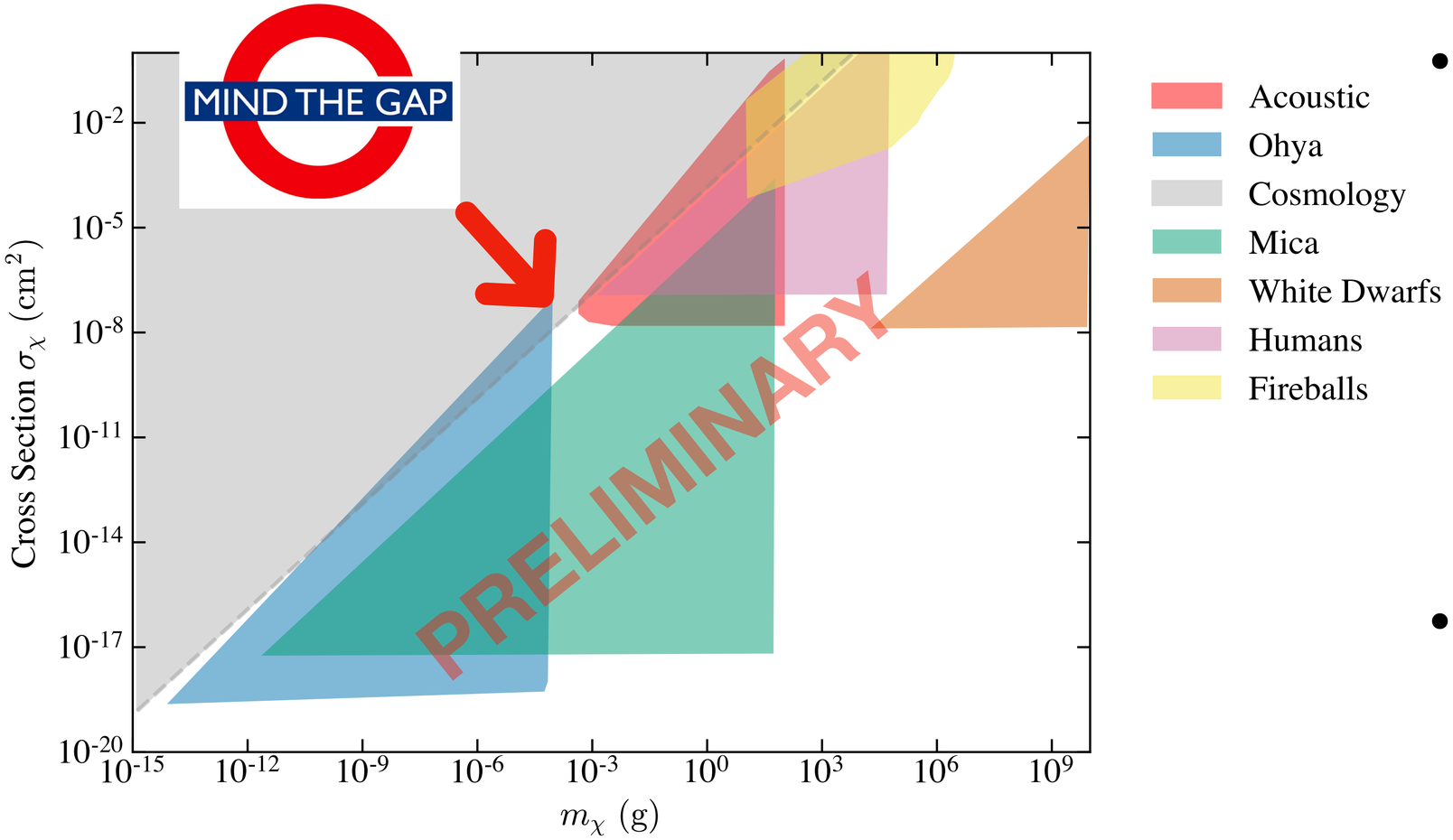

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- **Better hydrophone sensitivity = better cross section sensitivity - could plug the gap!**

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Thank you for listening