

SIDM

2017



Long-range interactions?

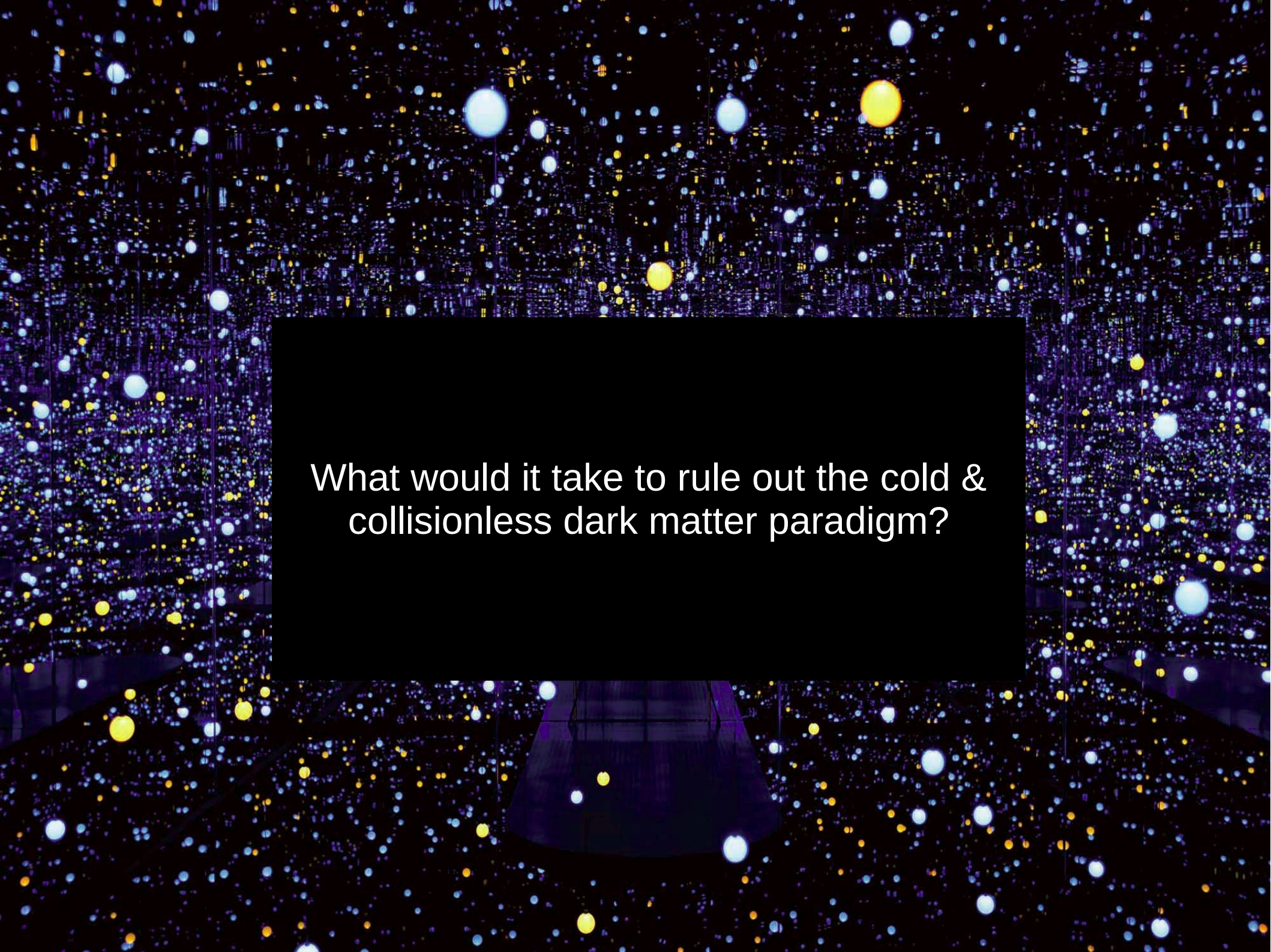


Contact interactions?



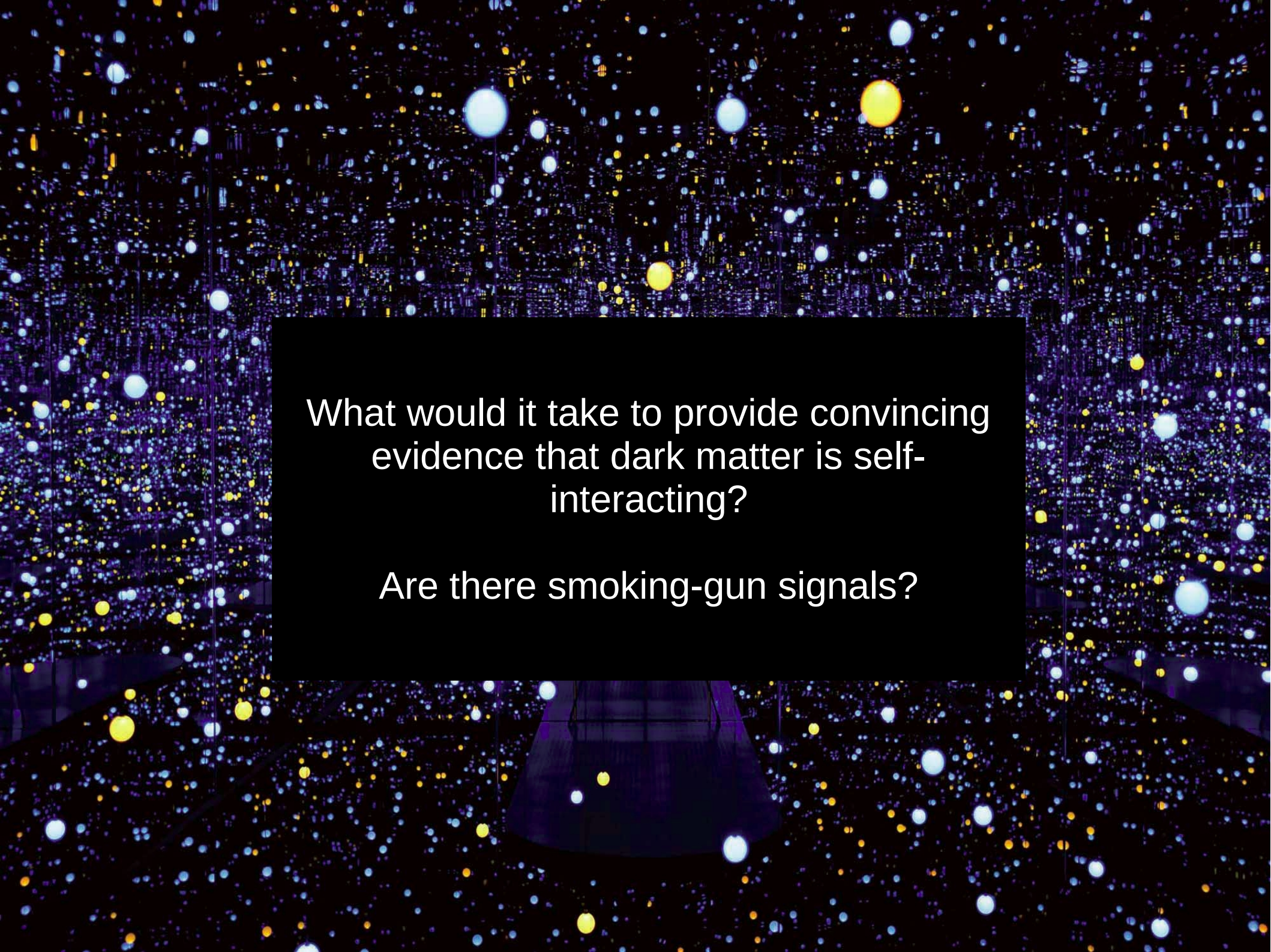
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What would it take to rule out the cold & collisionless dark matter paradigm?

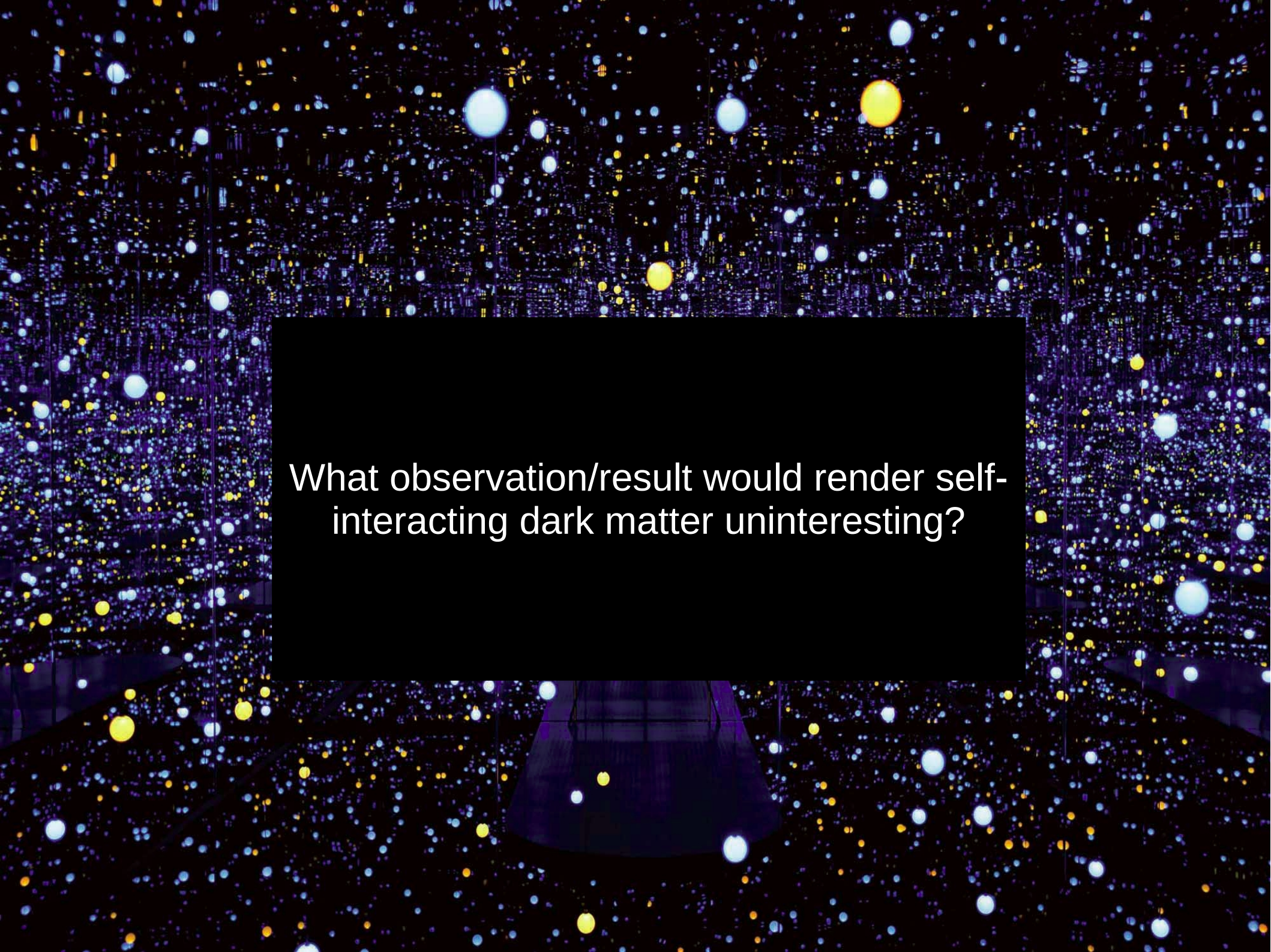




What would it take to provide convincing evidence that dark matter is self-interacting?

Are there smoking-gun signals?





What observation/result would render self-interacting dark matter uninteresting?





Can we hope to distinguish SIDM models  
with astrophysical observables?





How close are we to ruling out velocity-independent self-scattering cross sections?



A night cityscape with a dense field of light trails and bokeh lights in blue, yellow, and white. The lights are scattered across the dark sky, creating a sense of depth and movement. The overall atmosphere is vibrant and futuristic.

Do we need simpler models or more  
complex models?

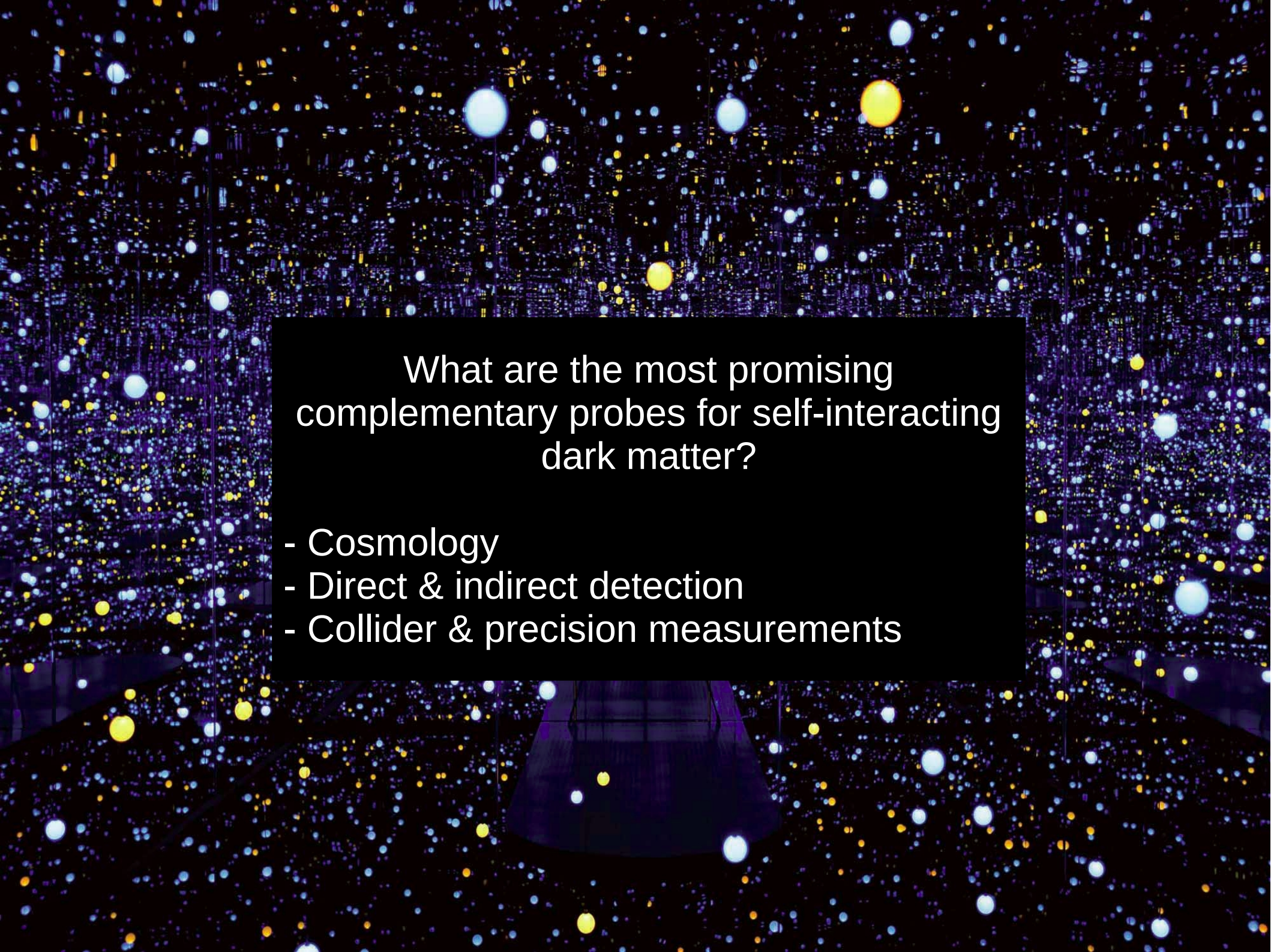




Does self-interacting dark matter need to  
have a consistent cosmology?

Is thermal freeze-out a useful guiding  
principle for SIDM model-building?





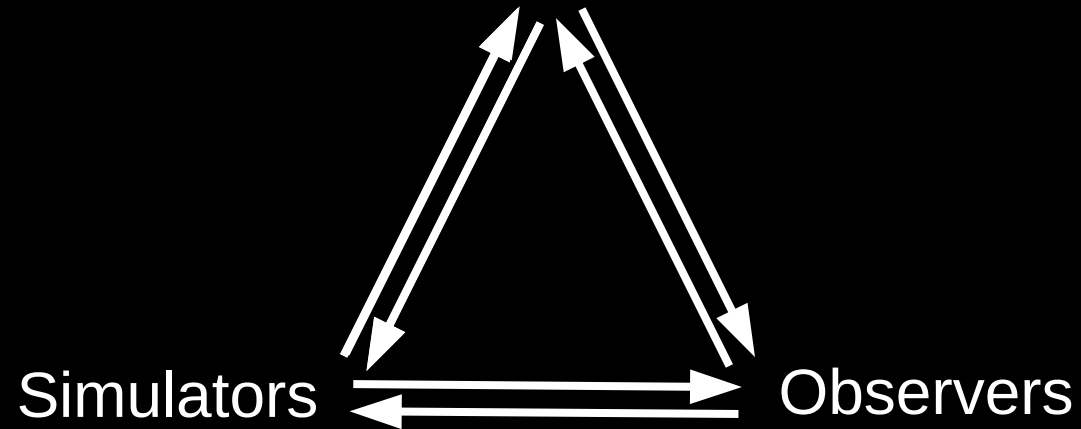
What are the most promising  
complementary probes for self-interacting  
dark matter?

- Cosmology
- Direct & indirect detection
- Collider & precision measurements



What input do we need most urgently?

Particle physicists







Many thanks to all  
participant for a very  
stimulating workshop!