

The slide features a black background with ten green circles of varying sizes scattered around the text. The circles are positioned at approximately (300, 80), (610, 140), (890, 100), (80, 230), (50, 740), (340, 820), (760, 880), and (940, 640).

String Cosmology: Axions

Naomi Gendler, Harvard University
Strings 2025

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**Axion experiments can teach us about
where we live in the string theory landscape.**

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Astrophysical tests
Dark matter probes
CMB birefringence

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Calabi-Yau
compactifications

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$$\int_{\Sigma_p} C_p$$

Open string

$$|A|e^{i\psi}$$

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- Key question: if a QCD DM experiment produces a signal, what do we learn about our place in this landscape?

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DM-Radio
ADMX
MADMAX
BREAD

The legend consists of four horizontal entries. Each entry has a colored line segment with a specific marker on the left, followed by the experiment name on the right. The entries are: DM-Radio (purple line with a circle), ADMX (yellow line with a triangle), MADMAX (teal line with a right-pointing arrow), and BREAD (red line with a left-pointing arrow).

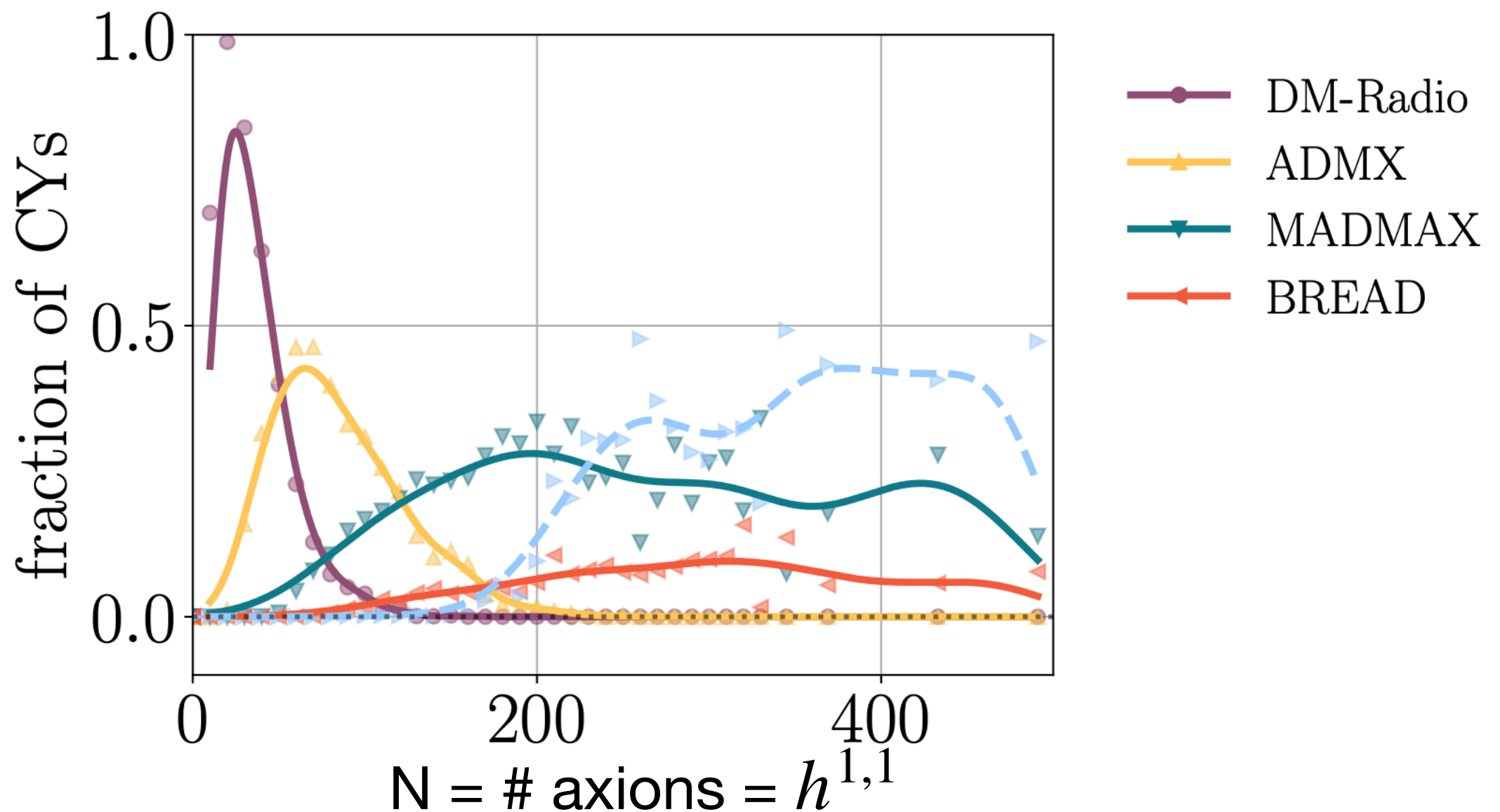
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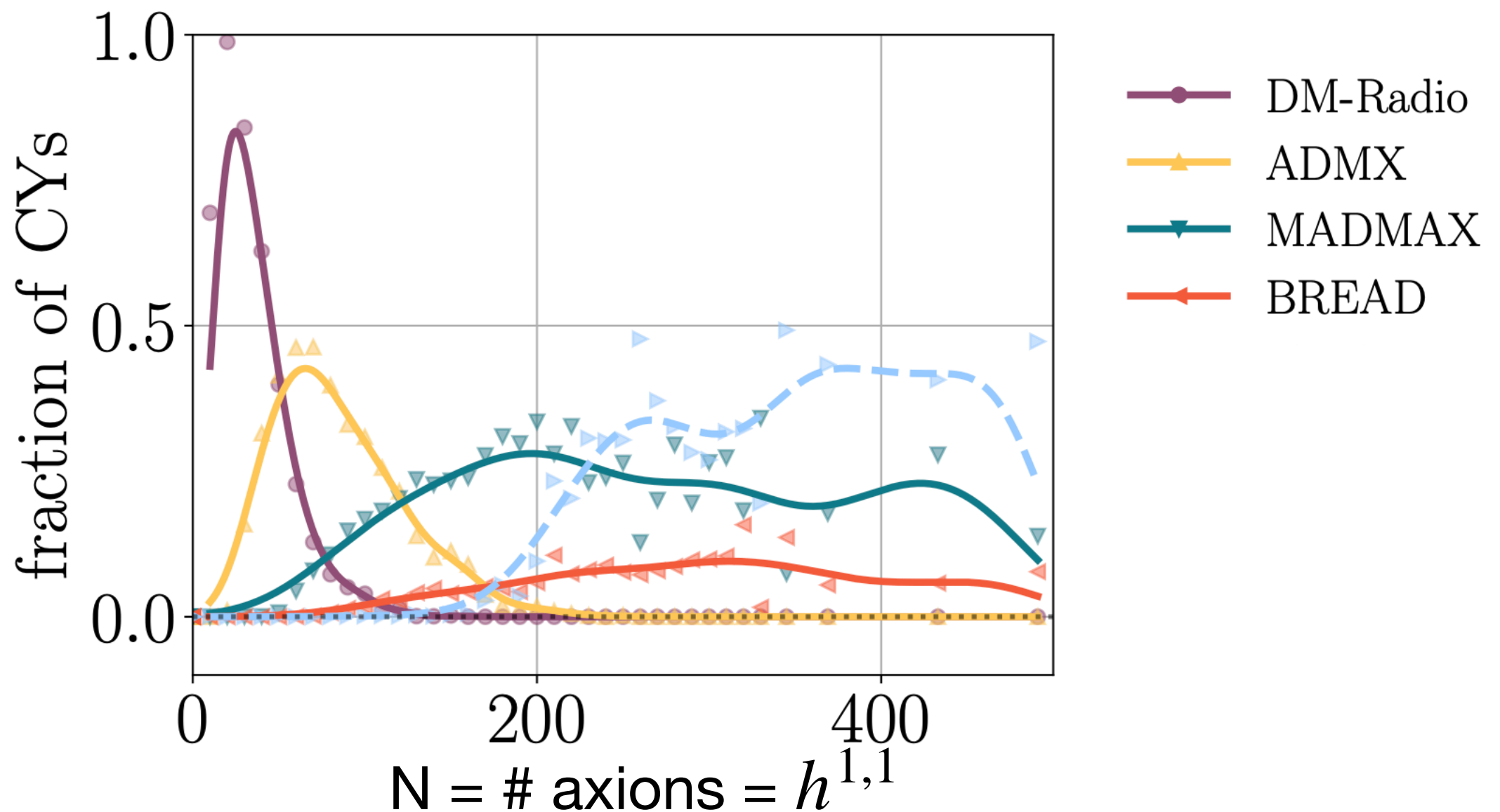
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- Striking feature: **different experiments are indicative on different N.**



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2. What are the most pressing axion observables to compute in string theory, given the landscape of upcoming axion experiments?
3. What is the interplay between stringy axion physics and broader cosmological considerations?
4. Can axion physics tell us anything about *computational control* in our universe?