

Title: Jessica Muir

Speakers: Jessica Muir

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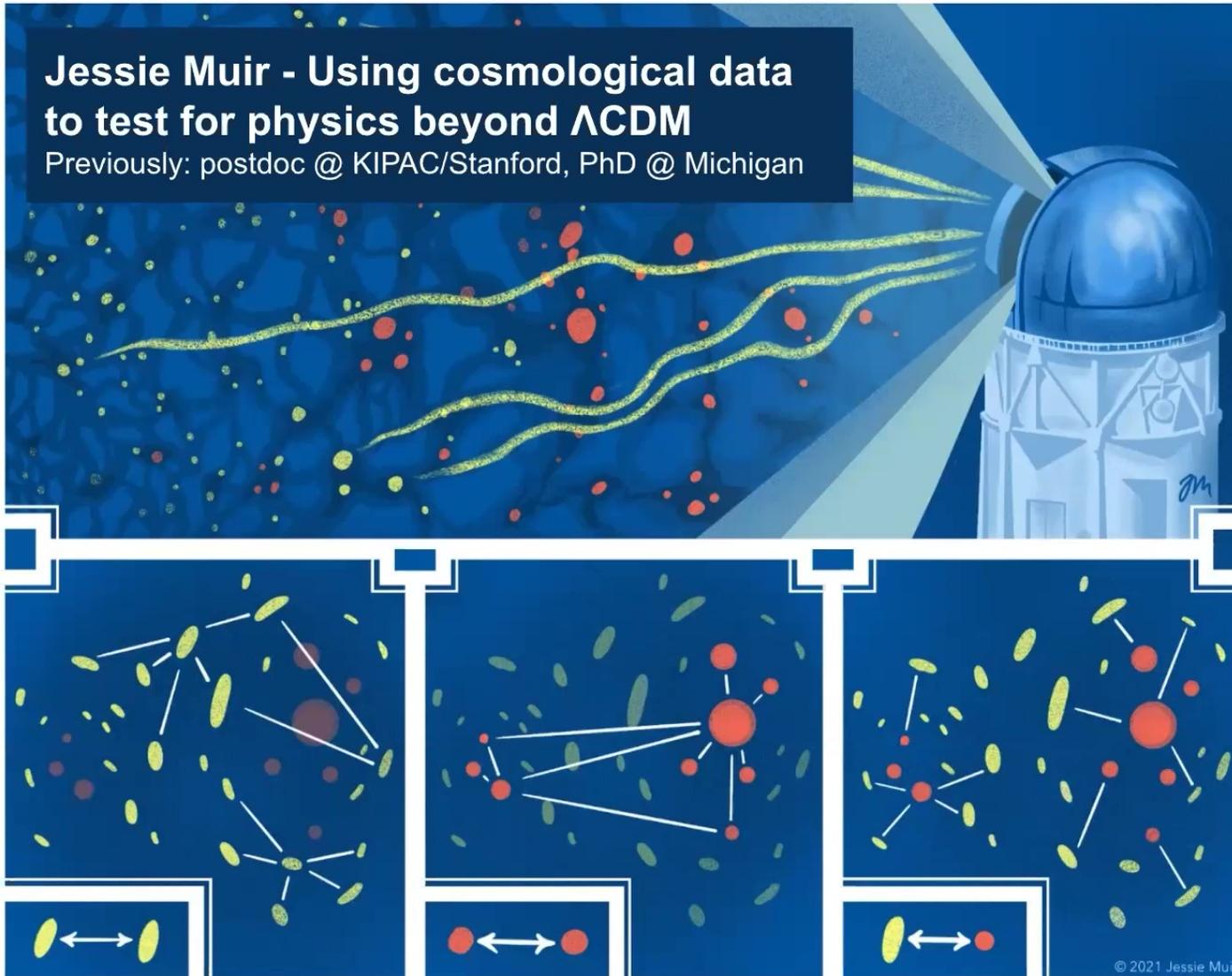
# Jessie Muir - Using cosmological data to test for physics beyond $\Lambda$ CDM

Previously: postdoc @ KIPAC/Stanford, PhD @ Michigan



*Main focus lately:* Theory and combined probes for the Dark Energy Survey.

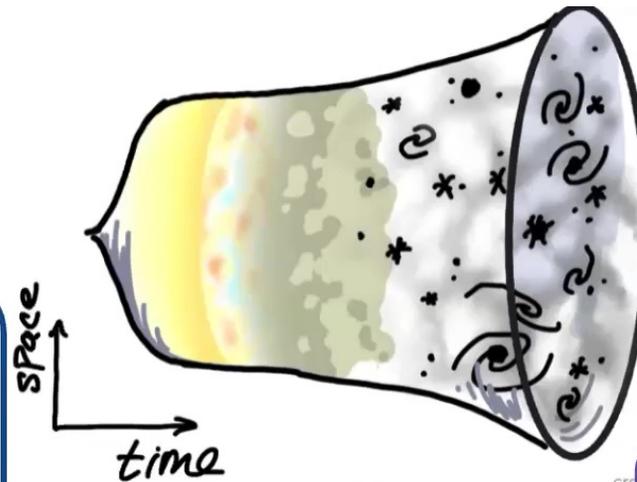
- DES Year-3 galaxy clustering and weak lensing analysis constraining  $\Lambda$ /wCDM: [arXiv:2105.13549](https://arxiv.org/abs/2105.13549)
- Co-leading analysis team constraining extended models:
  - Dynamic dark energy ( $w_0, w_a$ )
  - Curvature ( $\Omega_K$ )
  - Sterile neutrinos ( $N_{\text{eff}}, m_{\text{eff}}$ )
  - Modified gravity ( $\Sigma_0, \mu_0$ )
  - Binned  $\sigma_8(z)$



## Jessie Muir

### Other DES-related highlights

- Consistency test of constraints from expansion history vs structure growth (DES Y1) [arXiv:2010.05924](https://arxiv.org/abs/2010.05924)
- Blinding methodology [arXiv:1911.05929](https://arxiv.org/abs/1911.05929)
- Tension metrics [arXiv:2012.09554](https://arxiv.org/abs/2012.09554)
- Robust use of samplers for parameter estimation & model comparison [in prep]



DES observing shift,  
late August 2017

### Other interests

Large-scale structure beyond 2pt correlations

Nearest-neighbor statistics (ala [arXiv:2102.01184](https://arxiv.org/abs/2102.01184)) as a probe of modified gravity [paper in prep!]

### Forecasting tools

Relating constrainable parameterizations to more complex underlying models [preliminary]

### Large-angle CMB studies [previous]

- LSS survey systematics and ISW signal reconstruction [arXiv:1709.08661](https://arxiv.org/abs/1709.08661)
- Covariance of large-angle "anomalies" [arXiv:1806.02354](https://arxiv.org/abs/1806.02354)

