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## Constraining Dark Matter - Dark Radiation Interactions with Lyman-alpha Data

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Despite its remarkable success, the standard  $\Lambda$ CDM paradigm has been challenged lately by potential tensions in the Hubble Constant measurements, as well as a slight mismatch between simulations and observations on smaller scales. This has reinvigorated interest in beyond- $\Lambda$ CDM models, such as Dark Matter interacting with an additional dark sector. These interactions result in a suppression of the matter power spectrum on small scales, making them an ideal target to be constrained with Lyman-alpha data. In this talk I will discuss a novel parameterisation of this small-scale power suppression, which allows these models to be constrained with Lyman-alpha data without needing new, computationally-expensive hydrodynamical simulations for each set of model parameters. I will also present up-to-date constraints on these interactions and their ability to alleviate the cosmological tensions, obtained with our new method.

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