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## **Cosmological Constraints on Atomic Dark Matter** from Large Scale Structure in the Nonlinear Regime

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Atomic dark matter (aDM), with a minimal content of a dark proton, dark electron, and a massless dark photon, is motivated by solutions to the Hierarchy Problem such as Mirror Twin Higgs. aDM might address the seeming tension between cold dark matter (CDM) and observations at small scales, which can be probed by Lyman- $\alpha$  forest and 21-cm data. The linear cosmology solver CLASS has been modified to include aDM physics. We develop a CLASS-aDM emulator to improve 21-cm constraints to drastically speed up evaluation of CMB power spectra and transfer function predictions of atomic dark matter, which will allow its use in full parameter estimation scans that utilize our new constraints on aDM from Lyman- $\alpha$  and UVLF data, as well as future constraints from 21cm.

Authors: CURTIN, David Richard (University of Toronto); BARRON, Jared; YUAN, Linda; ROY, Sandip

**Presenter:** YUAN, Linda

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