



# University of Toronto

## Abstract

The history of baryonic structures, particularly after the epoch of `Cosmic Dawn' -- the onset of the earliest stars and galaxies -- is widely considered the 'final frontier' of observational cosmology today. Over the last decade, considerable effort has gone into investigating the nature of baryonic matter, theoretically and observationally. I will overview my current research related to atomic hydrogen and its evolution over 12 billion years of cosmic time, which involves a novel data driven framework developed for interpreting current and future observations. Extensions of this model pave the way towards a comprehensive understanding of molecular gas evolution, allowing us to interpret results from ongoing surveys. I will introduce a new approach capable of unmasking the hitherto elusive nature of Damped Lyman Alpha (DLA) systems, the largest high-redshift reservoirs of atomic hydrogen. These studies open up the exciting possibility of constraining fundamental physics from the Cosmic Dawn.

Thursday, November 21, 2019  
11:30 a.m.  
Cornett Building  
Room B107