**Astrophysics Seminar**

# CONSTRAINTS ON TIME VARYING FUNDAMENTAL CONSTANTS AND OTHER EXOTIC PHYSICS FROM BIG BANG NUCLEOSYNTHESIS

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Tuesday, August 21 ❖ 12:30 P.M. ❖ 184 NSH

Big bang cosmology is currently undergoing rapid evolution based upon numerous observational and theoretical developments. Nevertheless, big bang nucleosynthesis remains as one of the fundamental constraints on cosmological models must rest and is the only probe of the universe during the first few minutes of cosmic expansion. This talk will summarize the crucial role which big-bang nucleosynthesis plays in shaping some of the new cosmological paradigms. Among the topics discussed will be the limits which primordial nucleosynthesis places upon the time evolution of fundamental constants, the nature and origin of dark matter and of long-lived supersymmetric matter, the nature and origin of gravity waves and the primordial magnetic field, nature and origin of the cosmic dark energy. The crucial remaining uncertainties in nuclear reactions and the inferred primordial abundances will be also be reviewed.

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