

# JOINT TUFTS/MIT COSMOLOGY SEMINAR

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*SU(2)<sub>R</sub> and its Axion: A common Origin  
for Inflation, Cold Sterile Neutrinos, and  
Baryogenesis*

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Modern cosmology has been remarkably successful in describing the Universe from a second after the Big Bang until today. However, its physics before that time is still much less certain. It profoundly involves particle theory beyond the Standard Model to explain long-standing puzzles: the origin of the observed matter asymmetry, nature of dark matter, and cosmic inflation. In this talk, I will explain that fractions of a second after the Big Bang, relic SU(2)<sub>R</sub> gauge field with its axion in inflation can possibly relate and explain these seemingly unrelated pillars of modern cosmology. Thus, it can naturally explain the observed coincidences among cosmological parameters. The baryon asymmetry and dark matter today are remnants of a pure quantum effect (chiral anomaly) in inflation, which, thanks to flavor effects, are memorized by cosmic evolution.

**Tuesday, February 2, 2021, 2:30 pm**

Zoom link will be distributed to joint cosmology seminar mailing list. If not subscribed see <https://cosmos.phy.tufts.edu/mailman/listinfo/cosmology-seminar>

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