

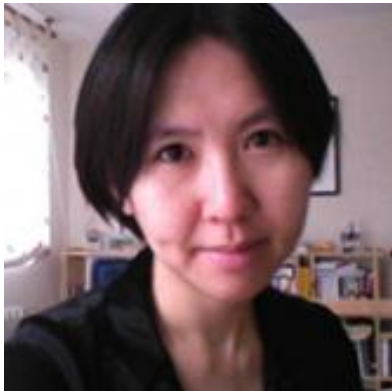


FZU

Institute of Physics
of the Czech
Academy of Sciences

Invitation

to the seminar of Division of Elementary Particle Physics of the
Institute of Physics of the Czech Academy of Sciences



Prof. Yvonne Wong

New South Wales University,
Sydney, Australia

Constraining the neutrino lifetime with precision cosmology

Abstract: The standard hot big bang model predicts a background of relic neutrinos at an average number density of 110 particles per cubic centimeter today. The sheer number of particles means that these neutrinos can collectively have strong effects on various cosmological observables, e.g., the CMB anisotropies and the large-scale matter distribution. Many have exploited these effects to place stringent constraints on neutrino properties—chief among them, the absolute neutrino mass scale—using precision cosmological observations. In this talk, I will discuss how precision cosmology can also be used to place constraints on invisible neutrino decay and hence the neutrino lifetime. In particular, I will discuss how our recent reevaluation of the neutrino anisotropic stress loss rate has resulted in cosmological neutrino lifetime limits that are orders of magnitude less constraining than previously thought. Notwithstanding, our new lifetime limits are still highly competitive relative to what can be achieved in the laboratory and/or via other astrophysics probes now or in the near future.

When: Thursday, January 18, 2024 at 2PM

Where: Main conference hall, Institute of Physics, Na Slovance 2, Prague 8

For more information, please see <https://indico.fzu.cz/event/220/>