



**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



### Dr. Adam Smetana

Institute of Experimental and  
Applied Physics, CTU in Prague

## Optical properties of cosmic void

**Abstract:** Interferometric responses of the electromagnetic waves are one of the most sensitive probes of the properties of the propagation media. The cutting edge interferometers (LIGO, VIRGO) with unprecedented precision has recently opened the gravitational wave window to the universe. That is one example of the power of interferometric technologies to detect the most elusive physical phenomena. In this presentation we review few approaches towards an interferometric detection of some of the most subtle astroparticle and cosmological substances, like relic neutrinos and dark matter. That consists of embracing two main optical phenomena which are the birefringence related to the optical activity, and variation of the index of refraction. We also mention the limitations of the space-based interferometric gravitational waves antennas (like LISA) given by modulation of the index of refraction of the interplanetary void by solar wind density variations.

**When:** Thursday, June 6, 2024 at 2PM

**Where:** Dvořák hall, FZU, Na Slovance 2, Prague

For more information, please see <https://indico.fzu.cz/event/252/>