



**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



**Jakub Vícha**

Institute of Physics  
of the Czech Academy of Sciences

### Decreasing systematic uncertainty of cosmic-ray mass through testing of models of hadronic interactions beyond LHC energies

**Abstract:** One of the fundamental questions in physics is the origin of the most energetic cosmic rays. This has been obscured mainly by uncertainties in their mass composition arising from the modelling of hadronic interactions in the air showers that these particles induce beyond the LHC energies in the central-mass system. For some time now, discrepancies between the model predictions and air-shower measurements have been complicating our efforts, especially due to the lack of the predicted number of muons on ground. I will review past and present attempts to test the models of hadronic interactions by various experiments. The talk will culminate with recently revealed new problem in air-shower modelling regarding the predicted depth of shower maximum. I will also discuss the consequences on the interpretation of measured air-shower data.

**When:** Thursday, January 9, 2025 at 2PM

**Where:** Dvořák hall, FZU, Pod Vodárenskou věží 1, Prague

For more information, please see <https://indico.fzu.cz/event/267/>