



# Münchner Physik- Kolloquium

Sommer  
2022

## Revealing fundamental physics with big data from galaxy surveys

Prof. Dr. Daniel Gruen, *Ludwig-Maximilians-Universität München*

Monday, 13 June 2022, 17:15 h

Hörsaal 2, Physik-Department der TUM, James-Franck-Straße 1, Garching

■ Neben der Veranstaltung vor Ort sind die Vorträge in diesem Semester auch als

Videoübertragung im Internet verfügbar: <https://tum-conf.zoom.us/j/93234766313>

Meeting-ID: 932 3476 6313; Password: Kolloquium; Please install the software in advance.

The most pressing unknowns in fundamental physics - the nature of dark energy, dark matter, neutrinos, and cosmic inflation - imprint clues of their nature onto the spatial distribution of and gravitational lensing effect experienced by distant galaxies. Our ability to observe large galaxy samples is exponentially increasing, with next-generation instruments like DESI, Euclid and the Vera Rubin Observatory able to image billions and record spectra of tens of millions of galaxies. I will cover ways of finding cosmological needles in such big-data haystacks, highlighting results from the latest round of Dark Energy Survey analyses. I will also discuss roles artificial intelligence can take, both as a tool for enabling accurate (not just precise) analyses, and as a model for the complex systems found in the universe that enables their use as cosmological probes.

## Student event: Meet the speaker

We invite you to a **student-only** discussion-round with Prof. Dr. Daniel Gruen before his Munich Physics Colloquium talk.

Be curious and feel free to ask any question.

Monday, 13 June 2022, 16:00 h,

Seminar room PH 3268 (upper floor), Physik-Department der TUM, James-Franck-Straße 1, Garching

