



# Münchner Physik- Kolloquium

Winter  
2019/20

## Advanced methods in x-ray imaging – from x-ray physics to biomedical applications

**Prof. Dr. Julia Herzen**, *Technische Universität München, Garching*

Monday, 16 December 2019, 17:15 h

Hörsaal H 030, Fakultät für Physik der LMU, Schellingstraße 4, München

Since the discovery of X-rays in 1895, the X-ray imaging has been an indispensable technique in diagnostic and industrial imaging. While the machines constantly improved over time, the way the contrast is generated has not changed over one century -- only the attenuation of X-rays has been used as a contrast mechanism. Over the last two decades, phase-contrast X-ray imaging has been developed using the refraction of X-rays to generate the contrast. This kind of imaging has been demonstrated to provide superior soft-tissue contrast in comparison to conventional attenuation-based X-ray imaging. However, visualizing biomedical soft tissue at high spatial resolution and high image quality still has been limited to brilliant synchrotron radiation sources with its very limited access. Thus, the possibility to perform high-quality X-ray phase-contrast computed tomography with laboratory setups is of great interest for a broad range of biomedical applications. We designed and built an imaging setup using a standard X-ray source and reaching comparable image quality as synchrotron-based instruments. Here, the performance of our instrument will be reviewed by highlighting the recent results on biomedical soft-tissue analysis of different human diseases.

## Student event: Meet the speaker

We invite you to a **student-only** discussion-round with Prof. Dr. Julia Herzen before her Munich Physics Colloquium talk.

*Be curious and feel free to ask any question.*

Monday, 16 December 2019, 16:00 h,

Room H 522 (5th floor), Fakultät für Physik der LMU, Schellingstraße 4, München

