

# Explore nonlinear materials for novel x-ray wave mixing

Nonlinear optics was kick-started by the invention of the laser and has since revolutionized broad areas of science and technology. Today, we witness the same development in the x-ray regime, where nonlinear processes are made accessible by free-electron lasers (FEL). In addition to novel sources, however, new materials are likewise needed to extract the most from nonlinear effects.

Take part in the search for these materials and join this summer-project, where you scout for candidate materials using numerical simulations and Density Functional Theory (DFT). Discover outstanding nonlinear properties in the x-ray regime and learn about solid-state physics in the process. For a hands-on complement to your calculations, you can join in lab-based characterization of candidate materials, e.g., by x-ray diffraction.

### Group

FS-PS

### Project Category

A6. Theory and computing

### Special Qualifications

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