

# Linking symmetry, crystal structure, electronic structure and properties

## tutorial

November 28, 2018 | 4:00 pm  
Lecture Hall MPI | B.1.11



### Abstract

Physicists must be able to reason intelligently and think intuitively about the electronic structure of the compounds they investigate in order to understand how the properties they aim to optimize can be tuned and manipulated.

In this tutorial we will build up, from very basic models of lattices, an intuitive, non-mathematical understanding of electronic structures and density-of-states (DOS) spectra, going from a simple 1-D chain of hydrogen atoms through 2D and 3D materials. To do so we will introduce basic symmetry concepts and see how they manifest themselves in crystal structures and correspondingly electronic structures, in real life examples. By the end of the lecture, we will be able to hand draw the DOS for YBCO simply by looking at the crystal structure.

**This will be an interactive lecture. The audience will be involved. Please have a cup of coffee before attending.**

### Speaker

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