Gabor analysis - Introduction and frame sets

Markus Faulhuber, University of Vienna

In this talk we will get to know the basic concepts of time-frequency analysis. Our main focus will be on Gabor systems, named after physics Nobel laureate Dennis Gabor. The goal of Gabor analysis is to decompose a function (signal) into simple building blocks in order to obtain a series representation from local time-frequency information. This is possible if and only if the Gabor system is a frame. For this to happen, the associated Gabor frame operator needs to be invertible and bounded. We will discuss the so-called "frame set problem" and the problem of finding optimal sampling patterns for Gabor systems.