

# ***Kikuchi Diffraction Patterns: Physics and Applications***

**Prof. Aimo Winkelmann**

Academic Centre for Materials and Nanotechnology (ACMiN)  
AGH University of Science and Technology

Kikuchi patterns are formed by electrons which are emitted from internal sources inside crystals. By adopting the perspective of an atom in the interior of a crystal, the beautiful geometry and the instructive physics of Kikuchi pattern formation will be explained and a selection of possible applications for the crystallographic analysis of materials will be discussed. Quantitatively, the formation of Kikuchi patterns can be simulated by a Bloch wave approach, which highlights the inseparable relationship between the concepts of electronic band structure and the mechanism of electron diffraction in crystals.