UNIVERSITÄT DUISBURG ESSEN | PHYSIK E=

Physikalisches Kolloquium

Mittwoch, 07.01.2026
13:00 Uhr
MC 122 und Zoom

https://uni-due.zoom-x.de/j/64228670246?pwd=RjVQeFNIUkRKRkpiNVpKYXhJaFNLdz09 (gilt für alle Vorträge)

Chirality and Topology

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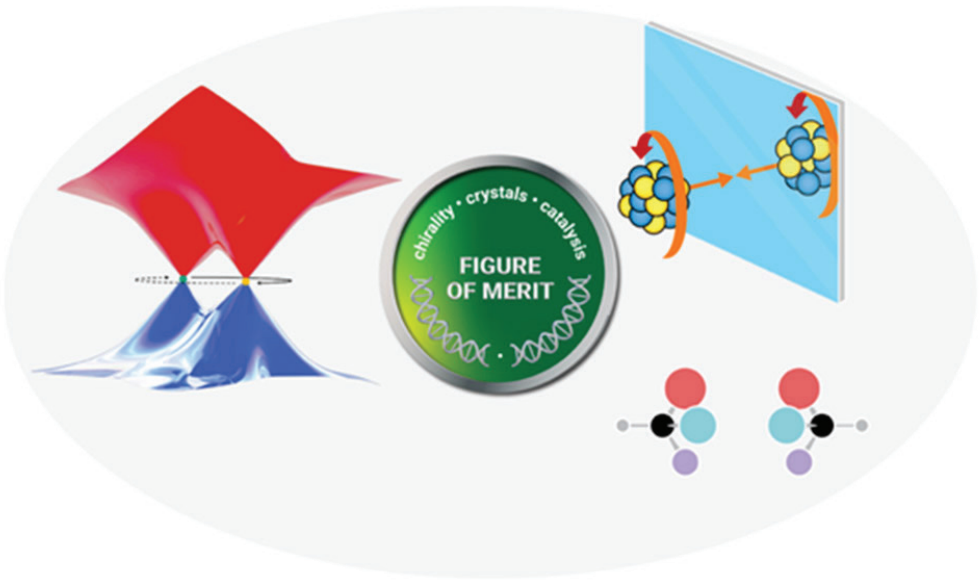

Chirality is when something cannot be superimposed on its mirror image. In quantum materials, chirality acts as a powerful and tunable property. Our research combines crystal structure, topological band theory, spin textures, and catalysis. Chiral topological semimetals and non-collinear antiferromagnets allow control over electronic and spin behaviors. Berry curvature and chiral phonons transfer chirality between electrons, vibrations, spins and and molecular structure. In catalysis, magnetic fields change reaction pathways, and spin polarization boosts selectivity. In correlated systems like kagome metals, chirality produces switchable transport effects. These findings make topology and chirality a key tool for material design.