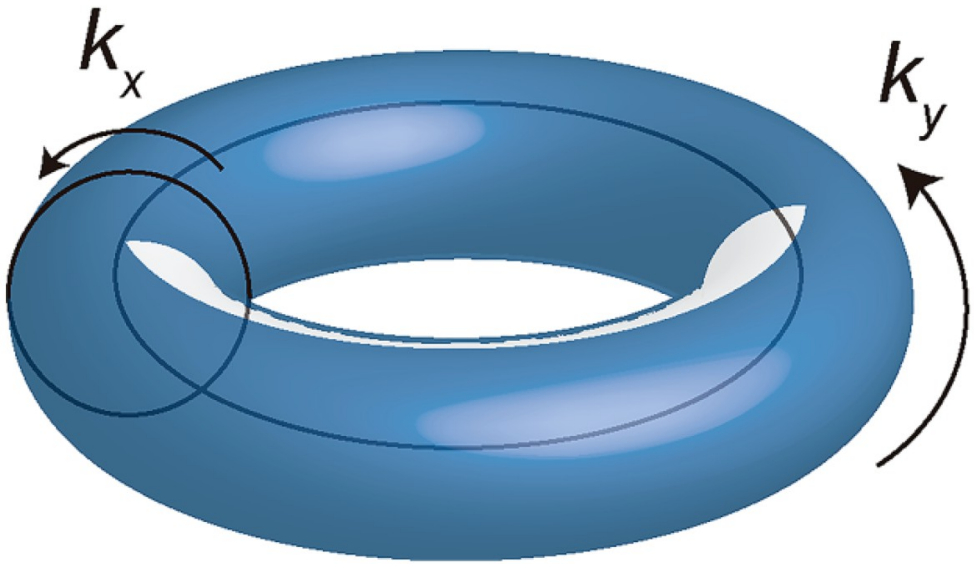
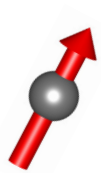
Band topology

anomalous velocity

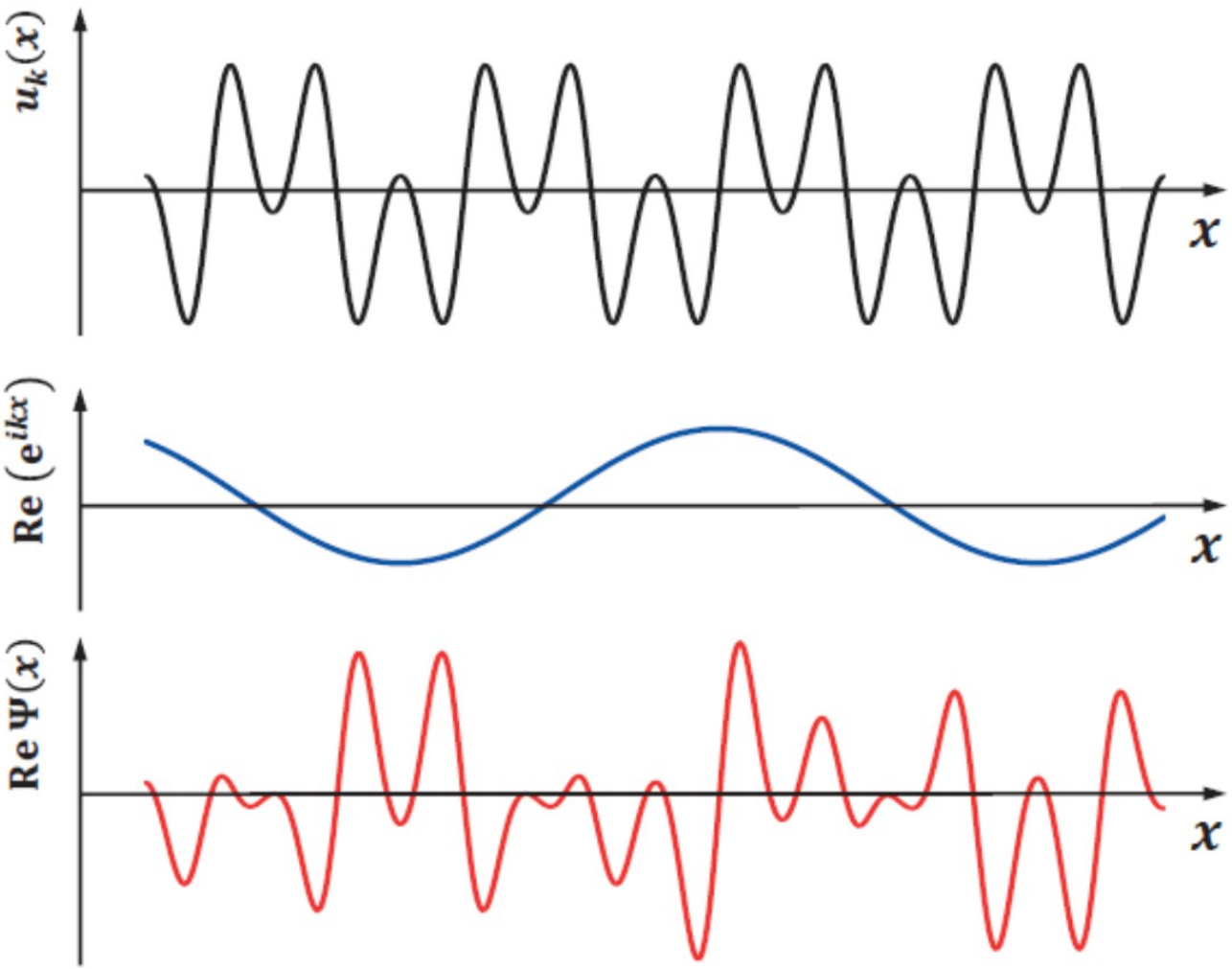






by Alexander Tsirlin, Leipzig University

Lecture 6: October 27, 2026



periodic part u_{nk}

plane wave

Bloch wave

Gross and Marx, Festkörperphysik

Berry curvature

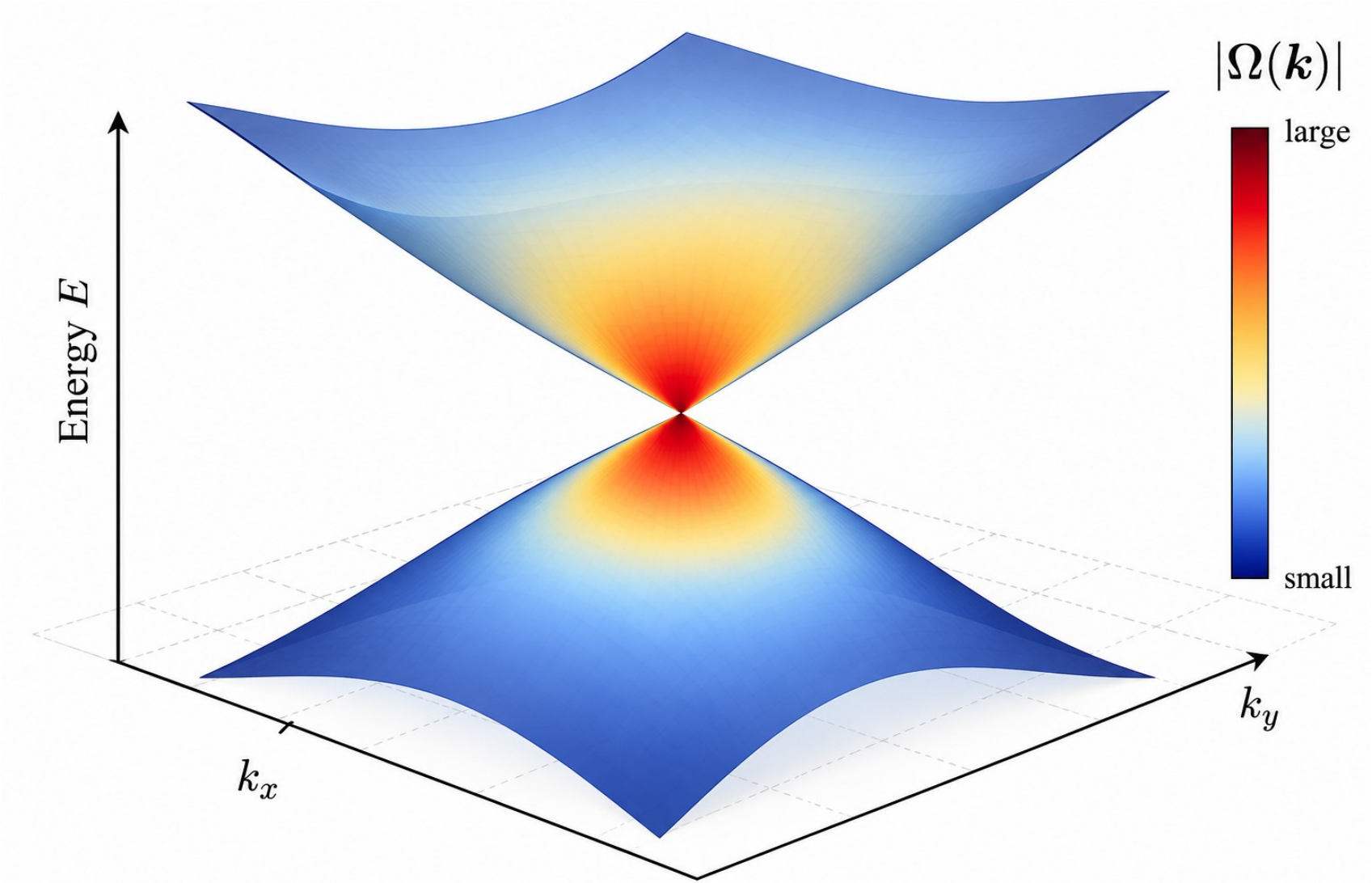
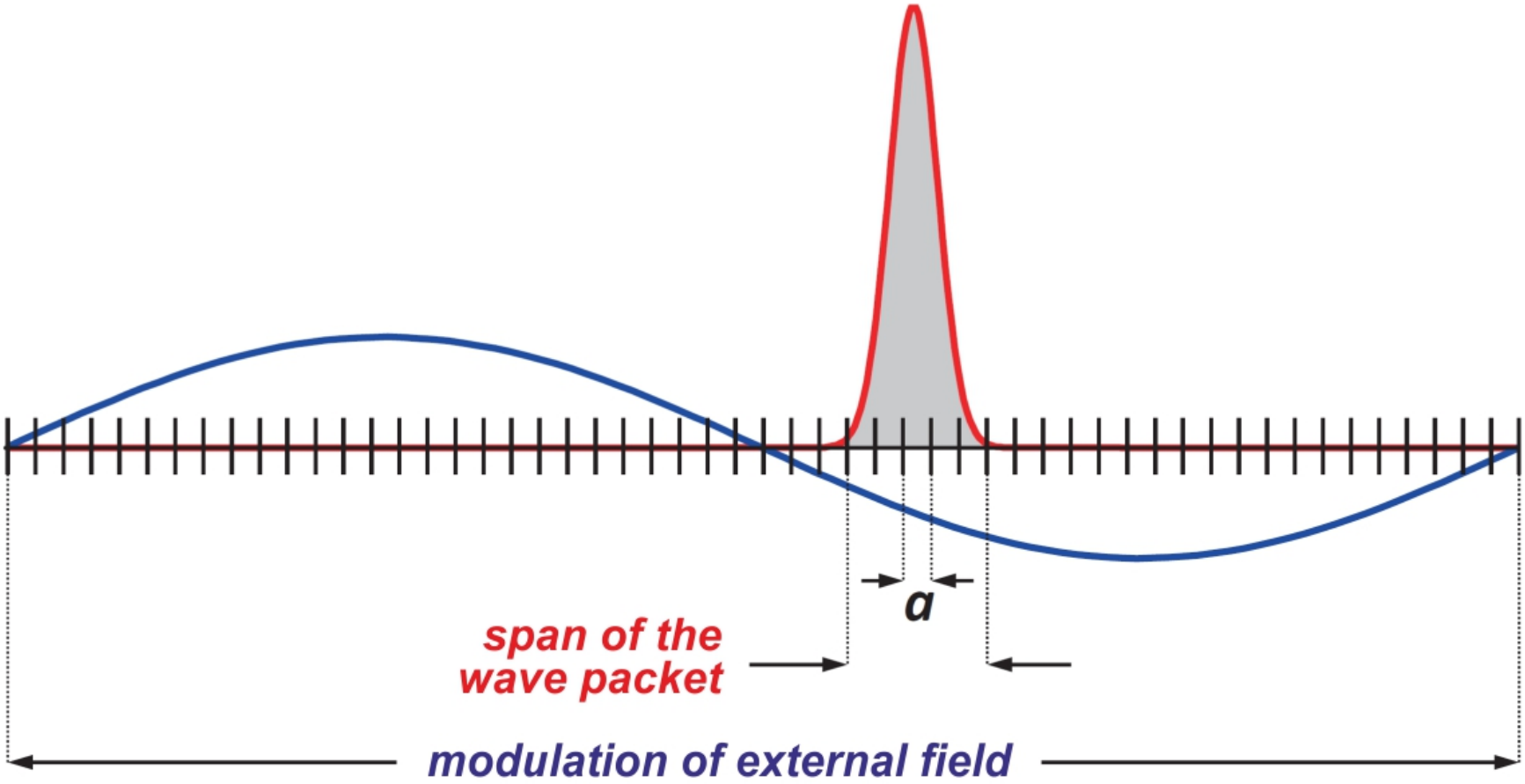


Image credit: ChatGPT

Wave packet



Gross and Marx, Festkörperphysik

Anomalous velocity

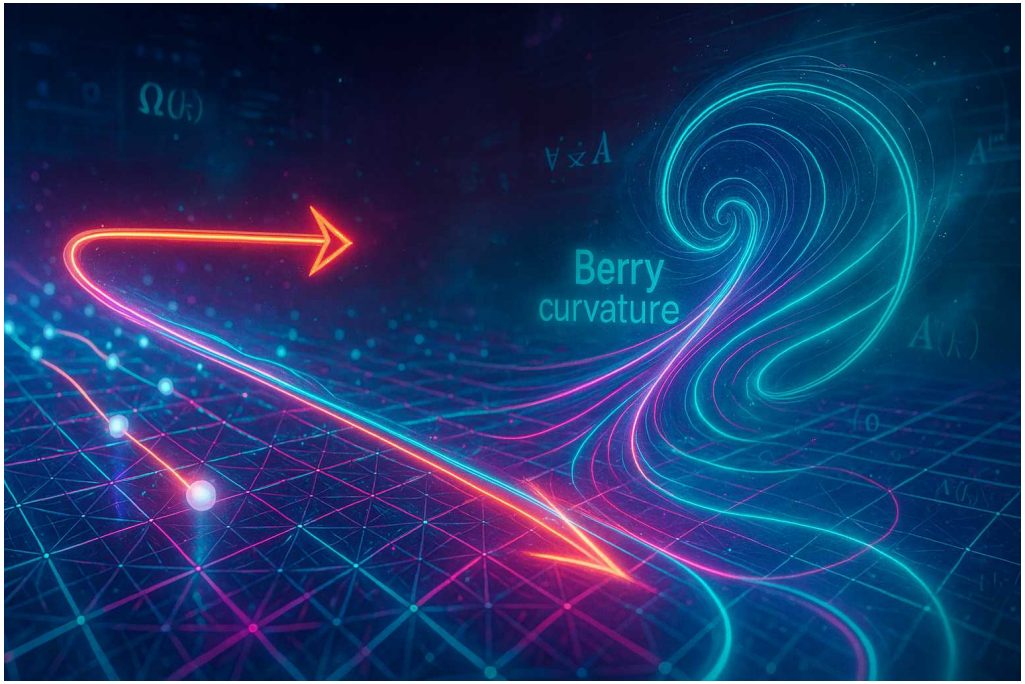
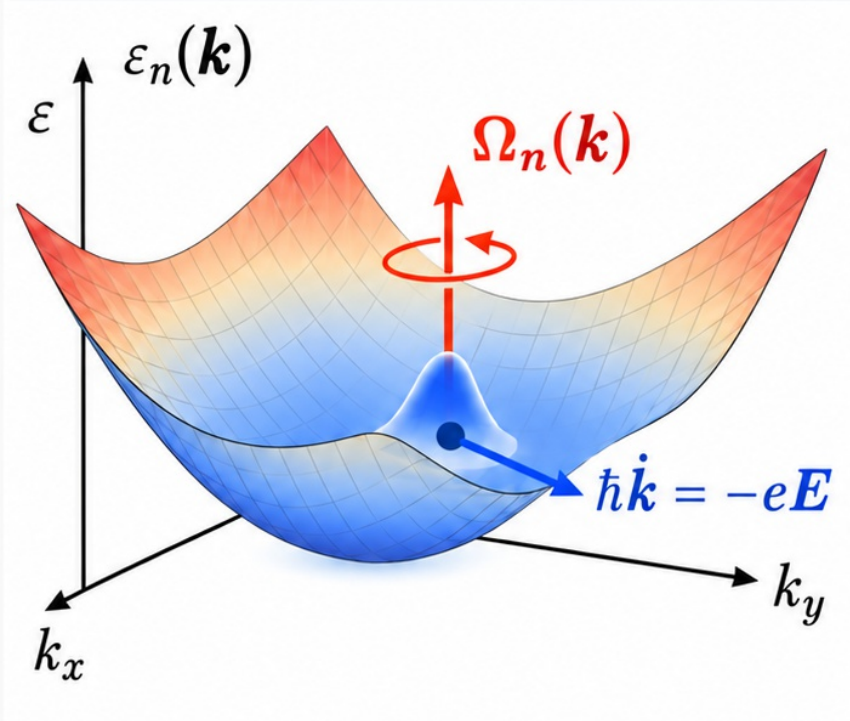


Image credit: ChatGPT

Anomalous velocity



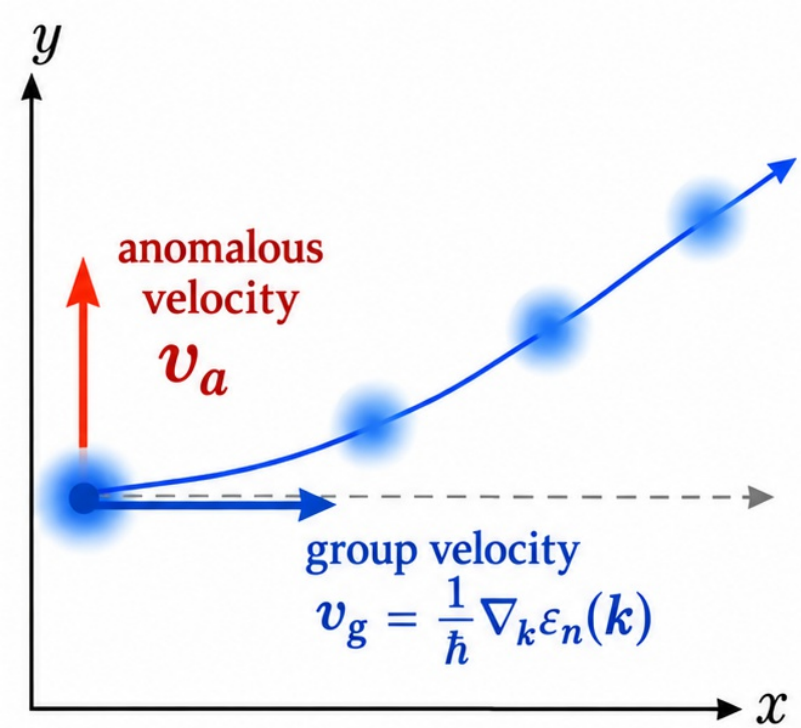
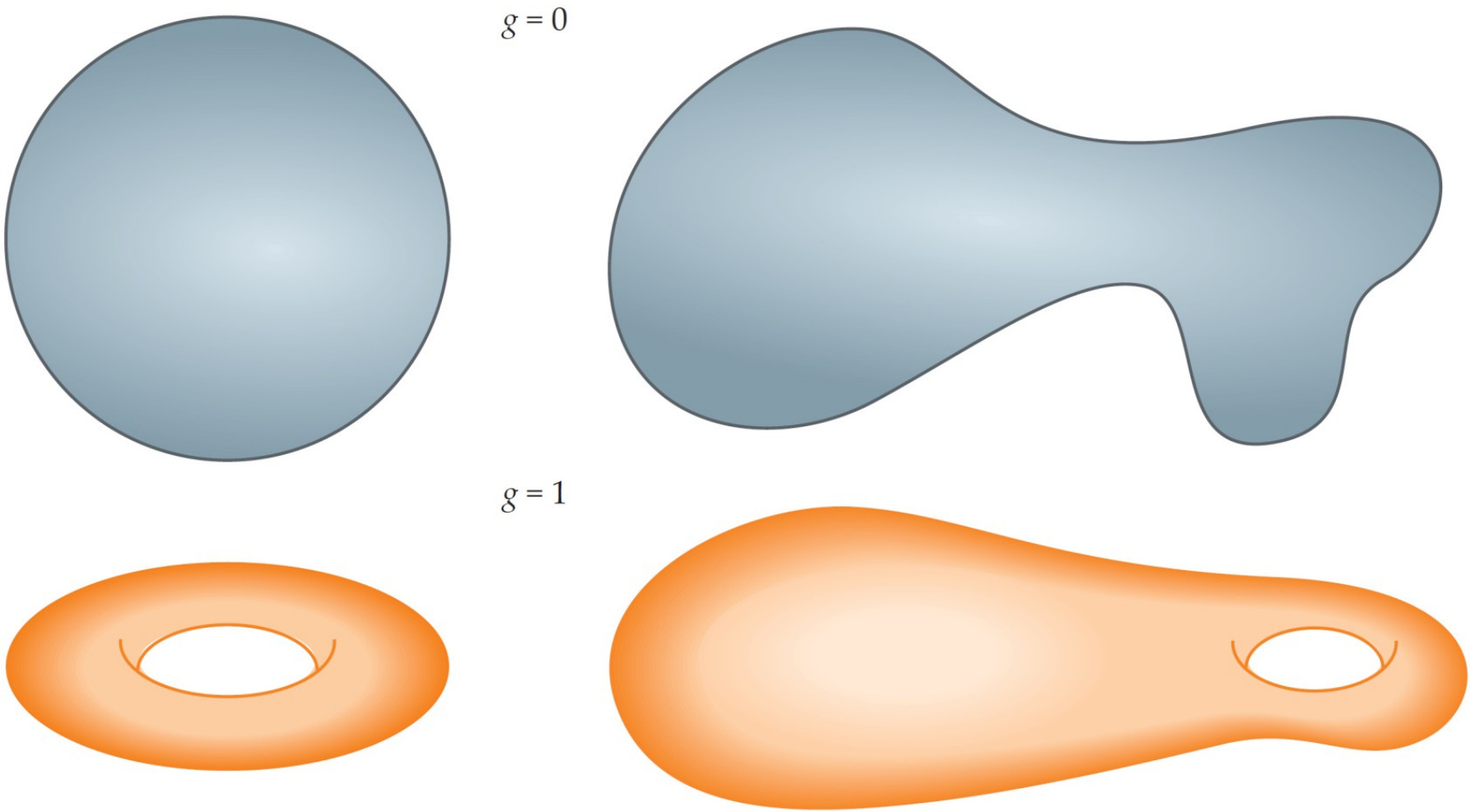


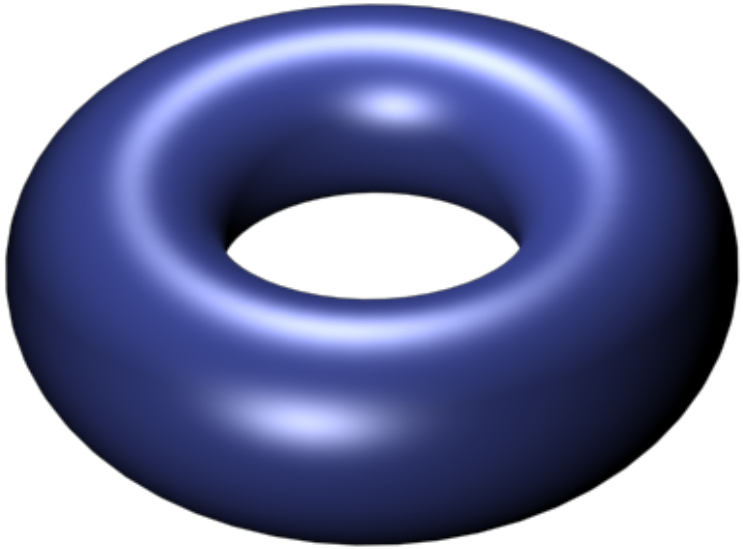
Image credit: ChatGPT

Genus as topological standard



Phys. Today 73(9), 30 (2020)

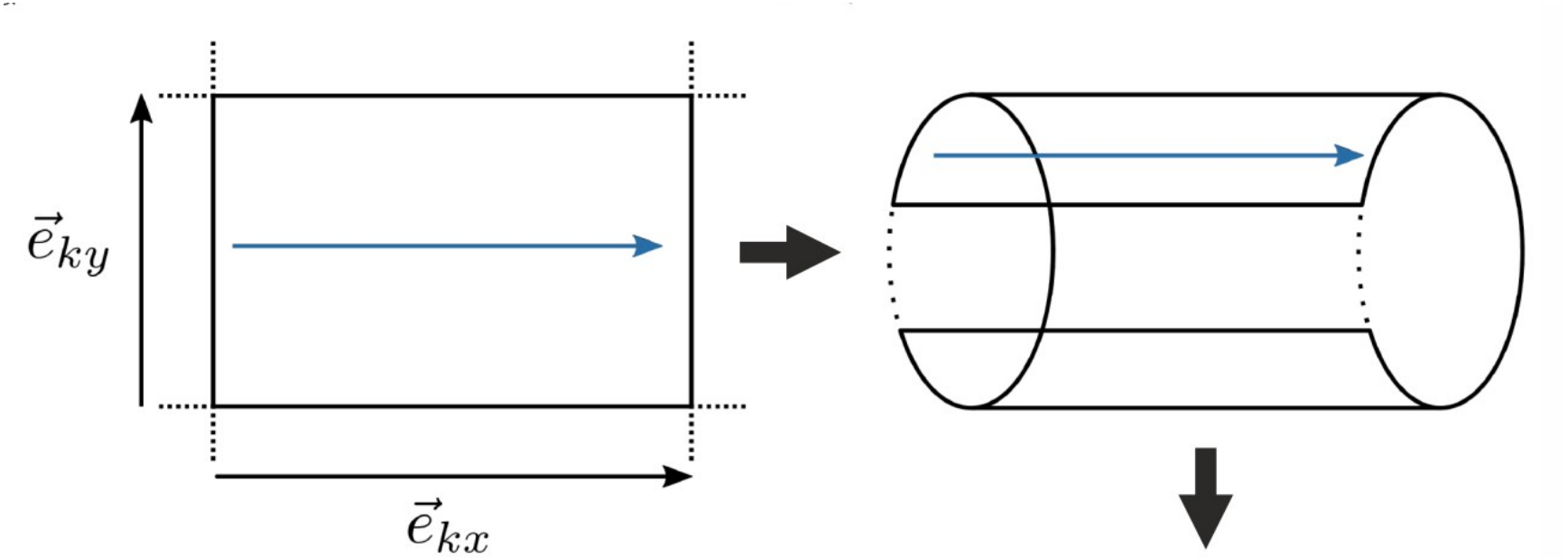


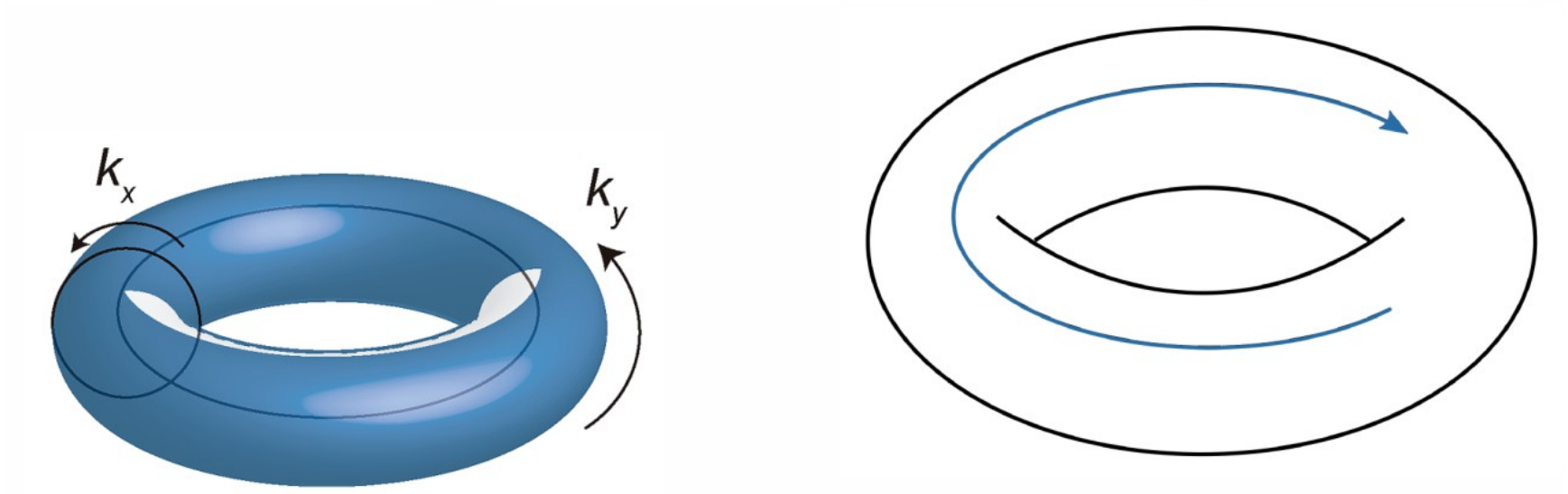


Coffee mug is topologically equivalent to a torus

Image credit: Pokipsy76 (CC-BY-SA) and Open Clip Art Library

2D Brillouin zone as torus





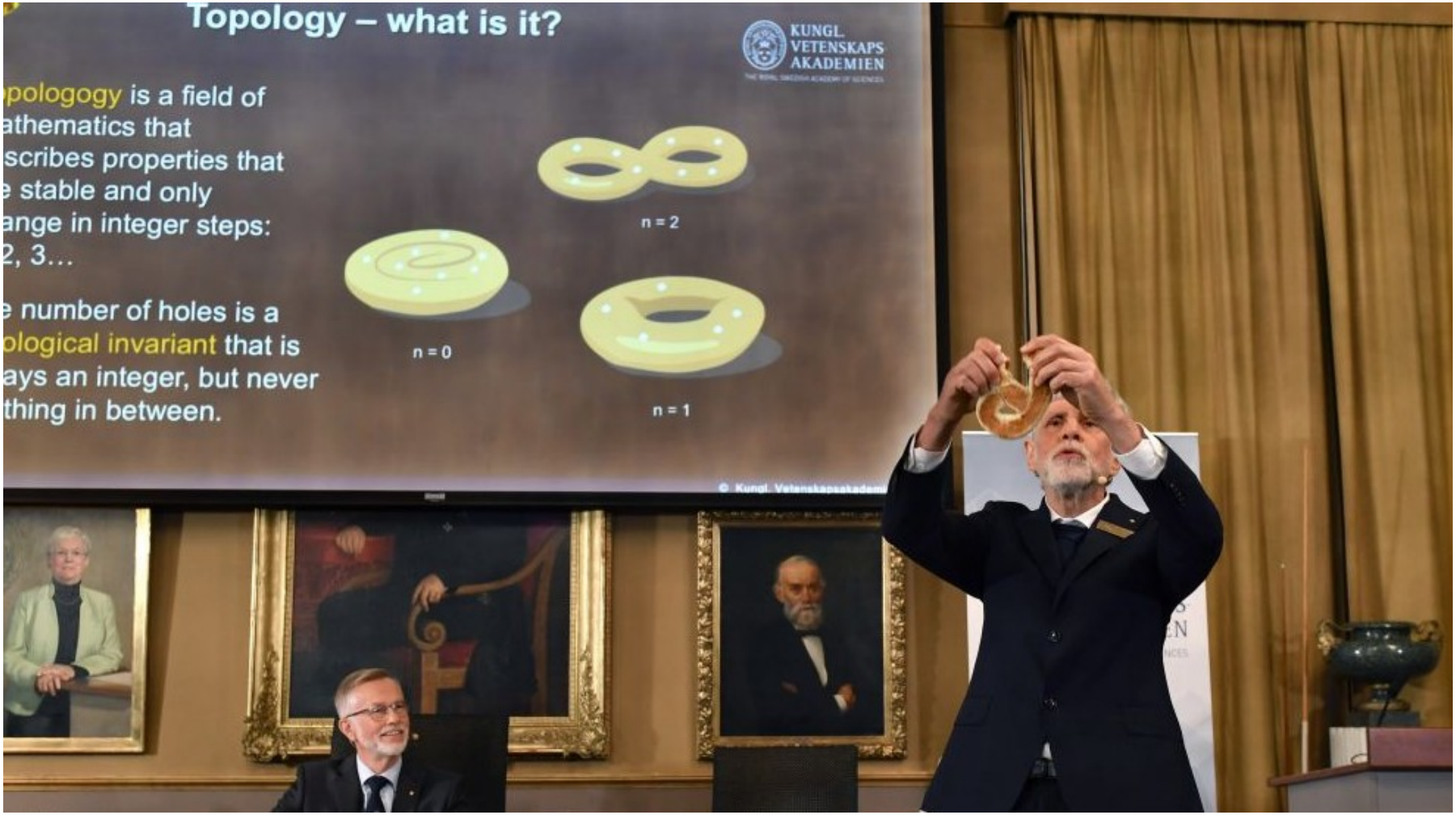
arXiv:2407.10464 and J. Appl. Phys. 128, 191101 (2020)

Topology for bakeries



Nobel prize award ceremony 2016: Kosterlitz, Thouless, Haldane

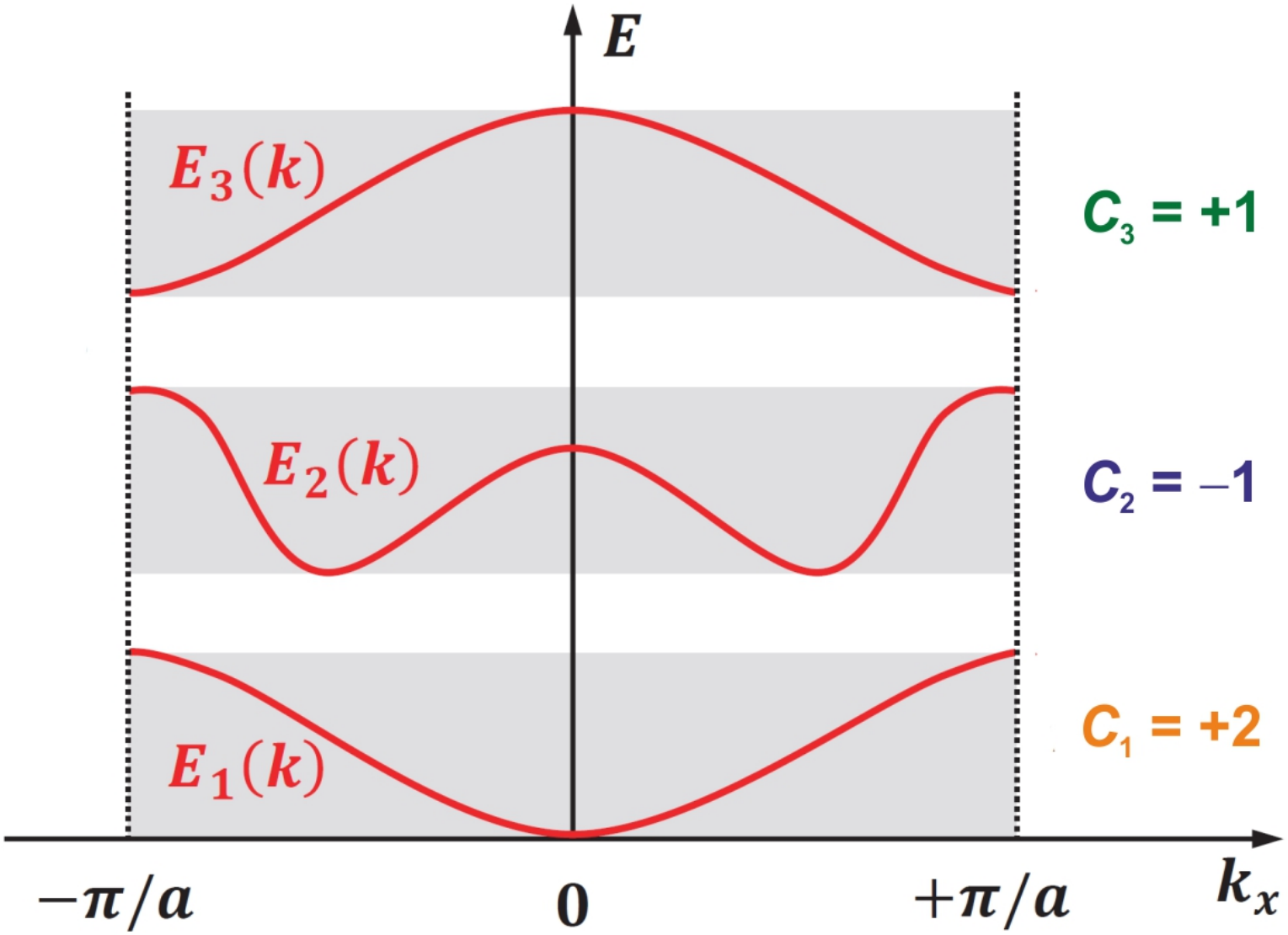
Image credit: Jonathan Nackstrand and Anders Wiklund (fair use)



Nobel prize award ceremony 2016: Kosterlitz, Thouless, Haldane

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Bands and their Chern numbers



Gross and Marx, Festkörperphysik