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【607】 Signatures of the 6D Quantum Hall effect in 3D topological pumps

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The 6-dimensional Quantum Hall effect offers rich physics that generalize the concepts developed over decades for its 2-dimensional cousin. Using modern technological advances that allow for the study of systems with additional synthetic dimensions, higher-dimensional physics that was previously deemed to be of purely theoretical interest can now be accessed. In this talk, I will show how a 3D-topological pump can be used to probe the 6D Quantum Hall effect, the latter having a quantized bulk response that emerges in systems with six or more dimensions, and is related to a 6D-topological invariant: the 3rd Chern number. Such a 3D-pump could be realized, for example, by extending recent atomic experiments on 1D- and 2D-topological pumps to include 3D optical superlattice.

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