## Existence of Chern numbers in the spectrum of quasicrystals: A structural interpretation

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An established theorem describing the spectral properties of quasicrystals through topological invariants [1] has been revisited for the one dimensional case [2-4]. Chern numbers, known to label the dense set of spectral gaps for quasiperiodic chains such as the Fibonacci chain, are shown to manifest as winding numbers, and also in the properties of a diffraction pattern of a Fibonacci based 2D structure. These features are shown to have a structural origin, which is coherent with the fact that the gap labeling theorem emerges from purely structural building rules. The effective Fabry-Perot model which predicts the bulk-edge correspondence for each spectral gap will be described.

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