

Quantum Fractals: From Meta- to Real-Materials

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We know how electrons behave in 1,2,3 dimensions, but what about $d=1.58$? In this talk, I will first describe fractals, structures that may have a non-integer dimension. Then I will present experiments on electronic [1] (see also [2]) and photonic [3] quantum simulators and explain how electrons and photons behave at fractal dimension. Finally, I will discuss the fractal-lattice Hubbard model [4] and the topological properties of electrons in self-formed bismuth fractals on InSb [5].

References

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