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Measuring second Chern number from dynamics MICHAEL KOLODRUBETZ, Boston Univ, TIAGO SOUZA, ANATOLI POLKOVNIKOV, Boston University — By using the fact that Berry curvature acts as an effective electromagnetic field, recent work has demonstrated the direct experimental measurement of the first Chern number in systems of one and two superconducting qubits. This basic idea should extend to a number of interesting cases, including the presence of finite temperature or degenerate ground states. In this talk, I will show how in such a system one can measure the next non-trivial number in a line of topological invariants – the second Chern number. I will comment on experimental realizations of this measurement and its connection to fractionalization phenomena.

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