Contribution Title:	QUANTUM HAMILTONIAN COMPLEXITY: WHAT QUANTUM INFORMATION TELLS US ABOUT CONDENSED MATTER PHYSICS
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The central problem in the area of condensed matter physics: understanding ground states of many body local Hamiltonians, turns out to be the quantum analogue of the major problem in computer science - the problem of satisfying local constraints over many variables. Quantum Hamiltonian complexity is a new and fast growing subfield of quantum information science which combines these two seemingly unrelated questions; it studies ground states, their structure and complexity, from a computational point of view. Over the past few years exciting new insights and intuitions arose from this marriage, and in this talk I will try to explain some of those. In particular I will focus on the recent result that 1 dimensional systems are as hard - computationally- as higher dimensional systems, as well as on new insights about the entanglement structure of ground states of general local Hamiltonians. The talk will be scattered with the many intriguing open problems in this new area.