

## **The quantum PCP conjecture and you.**

**Abstract:** In this talk I want to give an overview of the quantum PCP conjecture, arguably the most important open problem in theoretical quantum computer science, from the perspective of a physicist. I will discuss the conjecture itself, its consequences for entanglement in thermal systems (through the now resolved NLTS conjecture), as well as some obstacles to proving it. Along the way we will take a whirlwind tour of the central results of the field of quantum complexity theory. By the end I hope to have convinced you that these computer scientists are actually on to something, and that you too might want to ponder the quantum PCP conjecture.