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Black Holes, Thermodynamics, and Quantum Theory

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A black hole is a region of "no escape" that remains behind after a body has undergone complete gravitational collapse. It is truly remarkable that (i) black holes obey the ordinary laws of thermodynamics, (ii) the entropy of a black hole is given by a simple formula involving geometrical properties of its event horizon, and (iii) quantum theory plays an essential role in the thermodynamic properties of black holes. In this talk, I will review some of the key developments related to these properties of black holes, which fascinated me as a graduate student and continue to fascinate me now.