The incorporation of classical general relativity into the framework of quantum field theory yielded a rather surprising result -- thermodynamic particle production. In short, for fundamental deformations in the structure of spacetime, quantum mechanics necessitates the creation of thermalized particles from the vacuum. One such phenomenon, known as the Unruh effect, causes empty space to effervesce a thermal bath of particles when viewed by an observer undergoing uniformly accelerated motion.

In this presentation, we will review the timeline of conceptual discoveries which led to broad classes of these intriguing thermodynamic phenomena. Beginning with the original discovery of particles created by the expansion of the universe, we will cover a brief history of quantum field theory in curved spacetime, culminating in the first experimental observation of the Unruh effect, and other aspects of acceleration-induced thermality, in high energy channeling radiation.