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The Long Slow Death of the HBT Puzzle[1]

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Over the past 20 years two particle-correlations between identical pions have developed into a quantitative tool to test the space-time evolution of heavy-ion collisions. Surprisingly, correlations from RHIC failed to match expectations from hydrodynamic-based models, as the model-predicted source sizes were sometimes 50% higher than was inferred from experiment. This failure became known as the HBT puzzle (Hanbury-Brown and Twiss were pioneers in the original technique). Since the success of these very models in predicting spectra and elliptic flow was central to the discovery of the "perfect fluid," the failure of their HBT predictions was disquieting. In this talk, I will show how the discrepancy can be explained by the conspiracy of three effects: pre-equilibrium flow, using a stiffer equation of state and adding a modest viscosity. I will review the progress in finding a single description that reproduces the totality of soft bulk observables at RHIC.

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