

Abstract Submitted  
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**The Hole-istic: Superconductor Theory and Experiment**<sup>1</sup> HAMILTON CARTER, Texas A&M Univ — Do superconductors emit x-rays when they quench? Do holes lead double lives, undressing and pairing up as electrons when it gets cold? Can the London penetration depth be explained by holes lowering their kinetic energy and getting... well... fat? An experimental search is underway for the x-ray radiation predicted by Hirsch's hole theory of superconductivity. Originally proffered 25 years ago as a model for high temperature superconductors, the theory as it now stands applies to all superconducting materials. The basics of the hole theory of superconductivity will be presented, followed by a review of our experiment's design. You'll come away feeling more comfortable with covalent bonding, hopping amplitudes, Hamiltonians and coherent states. You'll learn about pulsed magnetic fields and x-ray detection techniques. You'll be the envy of your friends at parties as you describe both superconductor theory and cutting edge experiments on the frontier of modern physics with confidence and aplomb.

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