I. Introduction

Revolutionary rather than evolutionary advances in condensed matter research often arise from the discovery of new materials. The discovery of the first high temperature copper oxide superconductor, La$_{2-x}$Ba$_x$CuO$_4$, by Bednorz and Müller in 1986$^1$ is an excellent example. This discovery initiated an explosion of research activity that has resulted in the development of many new classes of copper oxide superconductors with critical temperatures ($T_c$) approaching 130 K. Most advances since