

Abstract Submitted  
for the FWS16 Meeting of  
The American Physical Society

**Whither High-Tc 30 Years Following Its Discovery? Challenges Facing the Path Forward for High Temperature Superconductivity from Its Fundamental Understanding to Eventual Societal Deployment** PAUL GRANT, W2AGZ Technologies — It is now 30 years since Georg Bednorz at IBM Zurich, first glimpsed what became known as “high temperature superconductivity” near 30 K in a mixed perovskite phase comprising lanthanum, barium, copper and oxygen derived from compounds first formulated at the University of Caen, Normandy, France. This discovery earned Bednorz, and his colleague K. Alex Mueller, the 1987 Nobel Prize in Physics. Their 1986 results had already been verified by a number of other institutions worldwide, as well as the finding of a related copper oxide perovskite with a transition temperature at 91 K, well above the boiling point of liquid nitrogen of 77 K, by Paul Chu and his collaborators at the Universities of Houston and Alabama, later that same year. These revelations set off worldwide speculation focusing on the basic physics underlying its origins, as well as their possible applications within the global electricity enterprise. Today, three decades later, many issues still remain open concerning both their basic understanding and eventual commercial uses. In this talk, we will address these matters by presenting a number of challenges for the emerging generation of young physicists, materials scientists and engineers to consider tackling within their future careers.

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Date submitted: 06 Sep 2016

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