

Abstract Submitted
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Design Algorithms for Novel High Temperature Superconductors¹ O. PAUL ISIKAKU-IRONKWE, The Center for Superconductivity Technologies(TCST), EMEKA OGUZIE, UKO OFE, TCST — A grand challenge in superconductivity is to develop a “materials specific” theory that enables us to design superconductors from the Periodic Table. Using the Periodic Table properties of electronegativity, valence electrons, formula weight and atomic number, we have been able to quantitatively describe all superconductors in terms of those parameters. We have observed specific correlations with various families of superconductors that enable us to reverse engineer those superconductors. We have developed simple equations, maps and algorithms that facilitate the design of superconductors and predict their approximate transition temperatures. Our design method does not employ density functional theory, even though DFT can be used to verify it. In this paper, we provide many examples of predicted “materials specific” novel high temperature superconductors that should test the authenticity of our design algorithms. We also propose a design for possible room temperature superconductivity.

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O. Paul Isikaku-Ironkwe
The Center for Superconductivity Technologies(TCST), Abuja FCT, Nigeria

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