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Search for Magnesium Diboride like Binary Superconductors¹ O. PAUL ISIKAKU-IRONKWE, The Center for Superconductivity Technologies[TCST], Abuja FCT, NIGERIA — Efforts to create compounds iso-electronic and iso-structural with magnesium diboride and also superconducting have so far met with limited success. Doping the Mg-site or the B-site have also not yielded higher transition temperatures. They have either been non-superconducting or have lower transition temperatures, Tc. Searching for magnesium diboride-like compounds using the electronegativity of MgB₂ (1.7333) has yielded a rich family of potential superconductors. The search has been facilitated using the recently designed ElectroNegativity Spectrum Maps [ENSMaps] of binary systems $A_x B_y$. Here we display the potential families. Using the relationship between Tc and atomic mass, we estimate the transition temperatures of the most likely MgB₂-like binary superconductors. We also suggest materials that can be doped to give an electronegativity of 1.7333.

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