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Synthesis and Characterization of ACu_4Pn_2 , with $A =$ alkaline and $Pn = As$ and Sb L.Z. DENG, BING LV, Y.Y. XUE, C.W. CHU¹, Department of Physics and TcSUH, University of Houston — A large number of the Cu-based layer compounds have been known to exist since the 1970's: some display structures similar to the Fe-based pnictide superconductors, such as the 111 and 122 phases. Unfortunately, other than their structures, reports on their physical properties are generally sparse. Only recently observation of superconductivity with a $T_c \sim 3.5$ K was reported by Han et al. in $LiCu_2P_2$ that displays a 122 structure. It was suggested that a more complex layer structure in pnictides may favor higher T_c as in the case of cuprates. We have therefore examined systematically ACu_4Pn_2 (142), with $A =$ alkaline and $Pn =$ pnictigen which has a more complicated layer substructure than the 1111, 111, 122 or 11 homologues. We have synthesized ACu_4Pn_2 , with $A =$ Li, Na, K, Rb and Cs and $Pn = As$ and Sb , some of which were made for the first time. The magnetic, electrical, calorimetric and thermal electric properties were determined at ambient pressure and compared. High pressure was also applied to some of the compounds. The results will be presented and discussed.

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