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A Search for Novel Superconductors: A Study of the Lithium-Boron System MICHAEL BLEIWEISS, Naval Academy Preparatory School, Newport, RI, JAFAR AMIRZADEH, Morris College, Sumter, SC, MING YIN, Benedict College, Columbia, SC, DOUGLAS KIRVEN, Sigma-K Corp, Durham, NC, ED SHARP, TIMIR DATTA, University of South Carolina, Columbia, SC — A rapid solid-state reaction was used to synthesize a class of novel lithium-boron based ceramics. The resulting multiphase ceramic materials were investigated by XRD, electron microscopy (SEM) and EDAX. Efforts were taken to avoid contamination by magnesium diboride; MgB_2 was not detectable by XRD or EDAX. A number of the samples were electrically conducting and some were found to be superconducting in the 30-40 K range. Superconducting transitions were confirmed by SQUID magnetometry. Efforts are in progress to identify and isolate the superconducting phase. Influence of preparation on the electrical conductivity and superconductivity will be reported.

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