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# Cladding Technology for Metal-Hybrid Composites with Network-Structure

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**Abstract :** Cladding process is very typical technology for manufacturing composite materials by the hydrostatic extrusion. Because there is no friction between the metal and the container, it can be easily obtained in uniform flow during the deformation. The general manufacturing process for a metal-matrix composite in the solid state, mixing metal powders and ceramic powders with a suited volume ratio, prior to be compressed or extruded at the cold or hot condition in a can. Since through a plurality of unit processing steps of dispersing the materials having a large difference in their characteristics and physical mixing, the process is complicated and leads to non-uniform dispersion of ceramics. It is difficult and hard to reach a uniform ideal property in the coherence problems at the interface between the metal and the ceramic reinforcements. Metal hybrid composites, which presented in this report, are manufactured through the traditional plastic deformation processes like hydrostatic extrusion, caliber-rolling, and drawing. By the previous process, the realization of uniform macro and microstructure is surely possible. In this study, as a constituent material, aluminum, copper, and titanium have been used, according to the component ratio, excellent characteristics of each material were possible to produce a metal hybrid composite that appears to maximize. $MgB_2$ superconductor wire also fabricated via the same process. It will be introduced to their unique artistic and thermal characteristics.

**Keywords :** cladding process, metal-hybrid composites, hydrostatic extrusion, electronic/thermal characteristics
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