

## Fabrication and Characterization the of Ex-Situ Processed MgB<sub>2</sub> Wires for Improved Critical Properties

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The ex-situ processed MgB<sub>2</sub> wires were fabricated with C-doped MgB<sub>2</sub> powder as a precursor for enhancement of the core density and critical current density of the wires. The C-doped powder was prepared with Mg, B, and C powders by the in-situ technique, which was subsequently used for the C-doped MgB<sub>2</sub> wires by the ex-situ technique using the powder-in-tube method as a function of carbon content (MgB<sub>2-x</sub>C<sub>x</sub> : x=0, 0.01, and 0.03). In addition, we added additional Mg in the ex-situ process as a sintering agent. The phase formation, lattice change, and microstructure were characterized and their correlations with the T<sub>c</sub> and J<sub>c</sub> variations will be presented.

Keywords: carbon, critical properties, doping, ex-situ process, MgB<sub>2</sub>

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