**MT29 Abstracts and Technical Program** 



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## Wed-Mo-Po.03-05: A study of the effects of CO2 and H2O on Bi-2212 properties

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High  $J_c$  in Bi-2212 wires is crucial for their use in high-field magnets.  $CO_2$  and  $H_2O$ , which can inadvertently be incorporated into Bi-2212 wire, negatively impacts  $J_c$ . At room temperature before the heat treatment,  $CO_2$  and  $H_2O$  are present in the wires as carbonates, hydrates, or surface adsorbates, but during the overpressure heat treatment they become gases. The overpressure heat treatment compresses the  $CO_2$  and  $H_2O$  gases preventing these gases from forming bubbles during the heat treatment. On cooling, they can form carbonates and hydrates in the fully processed Bi-2212 ceramic that degrade  $J_c$ . This study investigates the  $J_c$  performance of Bi-2212 wires with different  $CO_2$  and  $H_2O$  contents.

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