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M3Or4O-01: [Invited] High critical current REBCO tapes by Advanced MOCVD

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Using 4-μm-thick REBCO film and optimal film composition, we had demonstrated critical currents as high as 1,836 A/4mm at 4.2 K, 20 T (Jc = 11.5 MA/cm2). Recently, we scaled up this process to 50-m-lengths to achieve 1,274 A/4 mm at 4.2 K, 20 T (Jc = 8 MA/cm2) which about 70% of the short-sample champion value. Achieving uniform, repeatable and high in-field critical current over long tape lengths requires excellent control of pinning landscape in these high-performance tapes made by our advanced metal organic chemical vapor deposition (MOCVD) process. The A-MOCVD technique provides an opportunity to double the high critical currents by simultaneous double-sided deposition. Our progress in these areas will be described in this presentation.

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Author: SELVAMANICKAM, Venkat (University of Houston)

Presenter: SELVAMANICKAM, Venkat (University of Houston)

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