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## Study on AC Over-Current Characteristics with the Physical Properties of the Outer Layer of REBCO Superconducting Wire Having Composite Structure Using RF Sputtering Deposition Method

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In this paper, a REBCO thin film superconducting wire was fabricated by depositing materials with different specific resistance values ( $A_g$ ) on REBCO superconducting wire, using the "RF Sputtering Deposition Method" with micro-range thicknesses to form the outer layer. Then the fabricated REBCO superconducting wire were subjected to basic characteristics tests (measurement of their temperature distribution according to their changing resistance) and over-current transport-current tests to investigate their phase transition. Finally, the results of the basic characteristics tests and the over-current transport-current tests were analyzed to present the applications of superconducting power application devices of the REBCO superconducting wire according to the thickness and properties of the wire's stabilization layer.

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