

Abstract Submitted
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Superconducting properties of V-Ti nanowires fabricated by molecular-templating technique KAMDEM THADDEE, university of Utah, HYUNJEONG KIM, ANDREY ROGACHEV — A series of V-Ti nanowires with nominal composition $V_{70}Ti_{30}$ was fabricated by sputter co-deposition of vanadium and titanium on top of suspended fluorinated carbon nanotubes. The V-Ti films with thickness 15-20 nm fabricated at the same conditions were superconducting with critical temperature about 5 K. We observed that nanowires with the length about 110 nm and the nominal thickness of 20 nm are superconducting with resistance versus temperature dependence described well by the theory of the thermally activated phase slips. Thinner and longer wires displayed either insulating or mixed behavior. We argue that the possible reason for the discrepancy is incomplete crystallization of V-Ti alloy on top a carbon nanotube.

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