

Abstract Submitted
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**Superconducting Properties of
Nb/Mo Bilayers**¹ JAMES VELDHORST², PHILLIP BROUSSARD, Covenant
College — We studied various electrical properties of Nb/Mo bilayer films at low
temperatures as a function of layer proportions with series varying both Nb and Mo
(eg. holding Nb constant at 30nm with Mo ranging from 10 to 40 nm). After grow-
ing multiple series of Nb/Mo bilayers on silicon substrates at different configurations
through magnetron sputtering, the samples were cooled to $\approx 6\text{K}$, where we explored
their critical fields (H_{c2}) at low field strengths. Critical fields were measured using
both resistive and inductive measurements on the samples under the influence of a
magnetic field ranging from 0 to 120 Gauss. We also look at how the transition tem-
perature of the films (T_c) vary with Nb and Mo layer thicknesses. We will compare
our findings to the proximity effect theory for the T_c of thin film bilayers. We will
also contrast the linearity of our resistive H_{c2} vs T data fits with the non-linearity
of our inductive H_{c2} vs T plots.

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