

## ABSTRACT SUBMISSION FORMAT

**Microsoft Word Format** –all info be contained on one page

**TITLE** (bold) - New Times Roman; 14 point font

**AUTHORS** - New Times Roman; 12 point font

**AFFLIATION** - New Times Roman; 12 point font

- Used superscript numbers if more than one affiliation is needed
- Underline presenter
- Provided email of student presenter *and* advisor

**ABSTRACT TEXT** (< 200 words) - New Times Roman; 12 point font

**OPTIONAL FIGUURE and CAPTION** (must be on the samle page of the abstract)

**IN ALL CAPITAL LETTERS** – list preference for **POSTER** or **ORAL PRESENTATION**

Email your submission to [gthompson@eng.ua.edu](mailto:gthompson@eng.ua.edu) with the subject **Materials Science Symposium – POSTER or ORAL presentation**

***See example on the next page***

## Thin Film Growth Stresses in Cu

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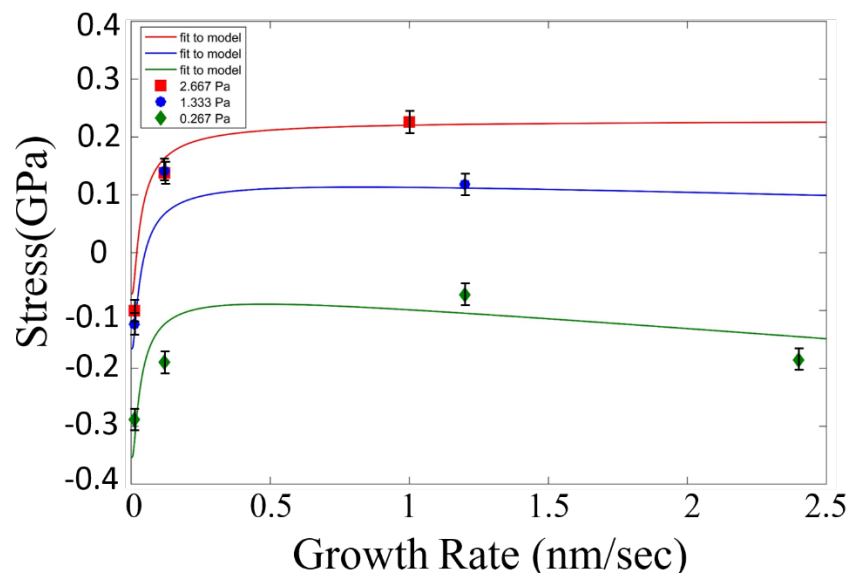
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The growth rate and pressure dependence on the intrinsic stress in sputter deposited Cu thin films has been investigated and compared to a kinetic growth model, which contains both growth and energetic contributions to stress in its description. Since microstructure also has a strong effect on intrinsic growth stress, we have been able to systematically control a fixed grain size over multiple growth conditions spanning 0.012 nm/s to 2.4 nm/s deposition rates and 0.267 Pa to 2.667 Pa pressures using a seed layer prior to film deposition. At high deposition pressures, the stress became more tensile as the growth rate increased. In the low deposition pressure regime, the stress became more tensile with increases in deposition rate until a critical cross-over point where upon further increases in deposition rate resulted in the stress becoming more compressive. These results are fitted to a kinetic model which can describe various mechanisms associated with sputter deposition intrinsic stress behavior.



**Figure 1.** Kinetic model fitting curves (solid lines) overlaid on stress versus growth rate measurements of Cu.

**POSTER**