

Abstract Submitted  
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**Functionalization dependence of the electron beam sensitivity of bridged calix[6]arenes**<sup>1</sup> GREGORY SPENCER, Texas State University-San Marcos, DANIEL RALLS, ANUP BANDYOPADHYAY, MICHAEL BLANDA, Texas State University-San Marcos — Calixarenes have long been studied as a class of high resolution, negative electron beam resists. Previous work has shown the sensitivity can be improved by adding functional groups to the monomer's molecular rim to allow for a more efficient cross-linking mechanism. However, all previous studies dealt with either unfunctionalized resists or monomers that were fully functionalized. In this study, the number of attached functional groups was deliberately varied to directly observe its effect on sensitivity. A bridged calix[6]arene monomer was used as the basic structure. The number of these attached allyl groups ranged from 0 to 8 in steps of 2 per separate synthesis. The bridging units were xylylenyl groups which produced both a cone conformer and a 1-2-3-alternate conformer. Resists were formed using all nine different calix[6]arenes and each was subjected to testing. Contrast curves for the cone and alternate conformers were measured by AFM. Resist sensitivities were found as a function of the number of attached groups. The sensitivity was found to be a strong function of the number of attached groups. These results will be discussed.

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