

Abstract Submitted  
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**Fabrication of Gated Corbino Discs on CVD Grown, Monolayer Graphene**<sup>1</sup> MICHAEL GASPER, RYAN TOONEN, University of Akron, NICHOLAS VARALJAY, ROBERT ROMANOFKY, FLIX MIRANDA, NASA Glenn Research Center — Using commercially available, CVD grown, monolayer graphene deposited on thermally oxidized silicon wafers, we have fabricated a variety of test structures that are suited for on-chip probing. The test structures include Corbino discs with inner disc diameters ranging from 20  $\mu\text{m}$  to 120  $\mu\text{m}$  and gap lengths ranging from 55  $\mu\text{m}$  to 105  $\mu\text{m}$ . Additionally, a new type of structure that we call the twinaxial Corbino ellipse was fabricated on the same chip with minor axes set to 230  $\mu\text{m}$  and major axes that varied from 276  $\mu\text{m}$  to 460  $\mu\text{m}$ . Inner disc electrodes with diameters ranging from 20  $\mu\text{m}$  to 120  $\mu\text{m}$  were placed at the foci of the elliptical devices. Our fabrication process involved the use a sacrificial aluminum layer, which prevented delamination during metal lift-off processes and kept polymer residues from degrading Ohmic contact quality. Gated current-versus-voltage traces from the Corbino discs revealed Dirac point operation corresponding to gate voltage values, which exhibited dependence on device dimensions and drain-to-source bias, ranging from 5 V to 15 V.

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