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Electronic Properties of Curved Graphene-Ring Structures\textsuperscript{1} DA-
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LOA, NANCY Sandler, Ohio University — We have undertaken a theoretical
investigation of electronic properties of a curved graphene ring in the Dirac approx-
imation making use of elasticity theory. This study is motivated by experimental
reports that indicate the existence of gauge-fields in graphene when it is under ten-
sion and also by the recent possibility of controlling deformations in its surface in a
variety of shapes on different substrates \cite{1}. We discuss how an Aharonov-Bohm field
can be used to design new responses obtained by adding real magnetic fluxes and
pseudomagnetic fields. We show that the persistent current tends to be inhomoge-
neous in the same way that the Fermi velocity has a spatial-dependent character\cite{2}.
We also discuss the role of strain in the position of the Dirac points that have been
the source of recent controversies. \cite{1} T. Georgiou et al., Appl. Phys. Lett. 99,
093103 (2011). \cite{2} F. de Juan et al., PRL 108, 227205 (2012). \cite{3} A. Kitt et al.,

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