

Abstract Submitted
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Resistive sensitivity functions for van der Pauw astroid and rounded crosses and cloverleaves¹ DANIEL KOON, St. Lawrence University, OLE HANSEN, Technical University of Denmark — We have calculated the sensitivity of van der Pauw resistances to local resistive variations for circular, square and astroid discs of infinitesimal thickness, as well as for the families of rounded crosses and cloverleaves, as a function of specimen parameters, using the direct formulas of our recent paper (Koon *et al.* 2013 *J. Appl. Phys.* **114** 163710) applied to “reciprocally dual geometries” (swapped Dirichlet and Neumann boundary conditions) described by Mareš *et al.* (2012 *Meas. Sci. Technol.* **23** 045004). These results show that (a) the product of any such sensitivity function times differential area, and thus (b) the ratio of any two sensitivities, is invariant under conformal mapping, allowing for the pointwise determination of the conformal mapping function. The family of rounded crosses, which is bounded in parameter space by the square, the astroid and an “infinitesimally thin” cross, seems to represent the best geometry for focusing transport measurements on the center of the specimen while minimizing errors due to edge- or contact-effects.

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