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Daniel Brake* (dbrake@nd.edu), **Jonathan Hauenstein**, **Lloyd N Trefethen** and **Charles Wampler**. *Regularizing closed cells of numerical real decompositions.*

Real algebraic components are computable by a variety of methods, including Cylindrical Algebraic Decomposition, ray tracing, and the numerical cellular decomposition. Bertini_real implements the numerical method, which uses a combination of homotopy continuation and symbolics such as isosingular deflation to decompose real curves and surfaces in any reasonable ambient dimension. Using linear projection values as parameters for the implicit function theorem, Bertini_real's output is a set of cells consisting of lower-dimensional boundary and generic cells, and a homotopy connecting them. This talk will discuss regularization of the cell homotopy for closed 1- and 2-cells of numerical real decompositions. (Received September 18, 2016)