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George A. Anastassiou* (ganastss@memphis.edu), Department of Mathematical Sciences,
University of Memphis, Memphis, TN 38152. *Fractional Multivariate Opial Type Inequalities Over
Spherical Shells*. Preliminary report.

Here is introduced the concept of multivariate fractional differentiation especially of the fractional radial differentiation, by extending the univariate definition. Then we produce Opial type inequalities over multivariate compact and convex subsets, mainly over spherical shells, studying the problem in all possibilities. Our results involve one, or two, or more functions. (Received July 05, 2007)