Multidimensional Integral and Discrete Opial-Type Inequalities

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Abstract : Over the last five decades, an enormous amount of work has been done on Opial's integral inequality, dealing with new proofs, various generalizations, extensions and discrete analogs. The Opial inequality is recognized as a fundamental result in the analysis of qualitative properties of solution of differential equations. We use submultiplicative convex functions, appropriate representations of functions and inequalities involving means to obtain generalizations and extensions of certain known multidimensional integral and discrete Opial-type inequalities.