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Margaret H. Wright*, Courant Institute, NYU. *Non-derivative optimization: Mathematics, heuristics, or hack?*

Non-derivative methods for optimization have been widely used with notable success in science and engineering for at least 50 years. Although their mathematical foundations were mostly lacking until the late 1980s, research on the theoretical and computational properties of old and new non-derivative techniques has flourished since then, and continues to grow. A notable feature of this research field is lively controversy about which methods are “most effective”, in part because several mathematical questions are unresolved (and perhaps unresolvable). This talk will briefly survey the current state of the art, trying along the way to highlight a few of the interesting open mathematical questions. (Received November 30, 2007)