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**Florian A Potra\*** (potra@umbc.edu), Department of Mathematics and Statistics, 1000 Hilltop Circle, Baltimore, MD 21250. *Interior point methods in wide neighborhoods of the central path.*

Until recently, the best complexity results for linear programming, quadratic programming and monotone linear complementarity problems were obtained by interior point methods acting in a small neighborhood of the central path, while the best practical performance was obtained by algorithms acting in wide neighborhoods. The gap between theory and practice was due both to the fact that algorithms based on small neighborhoods tend to perform more consistently, and to the fact that interior point methods acting in large neighborhoods are more difficult to analyze. The talk presents an overview of recent theoretical results that have closed this gap, and proposes new path following algorithms that act in a wide neighborhood of the central path and have optimal computational complexity. (Received January 16, 2011)