1043-90-176 **Olena Shevchenko*** (olena.shevchenko@wmich.edu), Western Michigan University, Department of Mathematics, 3319 Everett Tower, Kalamazoo, MI 49008-5248. *An Infeasible Interior-Point Algorithm for Linear Complementarity Problems.* Preliminary report.

The theory of complementarity problems has applications in many areas of science such as economics, engineering, and mathematics. In optimization theory, complementarity problems arise naturally as optimality conditions for optimization problems. Linear and convex quadratic programming problems being very important for practitioners can be treated in the unifying framework of linear complementarity problems. Interior-point methods originally developed for linear programming were generalized to linear complementarity problems. In this talk we will consider a special class of linear complementarity problems and present a new interior-point algorithm for this class. A successful practical algorithm should use a starting point that is readily available. We achieve this goal by working with infeasible starting points. Our algorithm improves feasibility and optimality simultaneously. In this talk we present the framework of the algorithm, some details of the analysis, and iteration complexity as well as the rate of convergence results. (Received August 26, 2008)