1077-90-1718   **Mau Nam Nguyen*** (`nguyenmn@utpa.edu`), Department of Mathematics, University of Texas-Pan American, 1201 W. University Drive, Edinburg, TX 78541, and **Cristina Villalobos** (`mcvilla@utpa.edu`), Department of Mathematics, University of Texas-Pan American, 1201 W. University Drive, Edinburg, TX 78539. *The Smallest Intersecting Ball Problem and the Smallest Enclosing Ball Problem: Numerical Implementation.*

The smallest enclosing circle problem asks for the circle of smallest radius enclosing a given set of finite points on the plane. This problem was introduced in the 19th century by James Joseph Sylvester (1814–1897). After more than a century, extended work on the problem remains very active. In this talk we present new results on the following two problems: *the smallest enclosing ball problem* and *the smallest intersecting ball problem.* The smallest enclosing ball problem states that given a finite number of nonempty closed subsets of a Banach space, find a ball with the smallest radius that encloses all of the sets. Similarly, the smallest intersecting ball problem finds a ball with the smallest radius that intersects all of the sets. We will focus on algorithms and numerical implementation to solve the problems. This work is a continuation of our effort in shedding new light to classical geometry problems using advanced tools of variational analysis and optimization. (Received September 22, 2011)