1086-11-1085   **Andrew G. Earnest*** (`aearnest@siu.edu`), Department of Mathematics, Southern Illinois University Carbondale, Carbondale, IL 62901. *Strictly Regular Positive Definite Quaternary Quadratic Forms and Lattices.*

A positive definite quadratic $\mathbb{Z}$-lattice is said to be *strictly regular* if it primitively represents all positive integers that are primitively represented by its genus. It will be shown that there exist only finitely many isometry classes of primitive integral positive definite quaternary quadratic $\mathbb{Z}$-lattices that are strictly regular. The complete enumeration of the diagonalizable lattices having this property will be described. As a consequence, all one-class genera of diagonal quaternary quadratic forms are determined. The work described in this talk is joint work with Ji Young Kim of Seoul National University. (Received September 18, 2012)