1023-52-609 **Monika Ludwig*** (monika.ludwig@tuwien.ac.at), Institut f. Diskrete Mathematik und Geometrie, Wiedner Hauptstr. 8-10/104, 1040 Vienna, Austria, and **Christoph Haberl** (christoph.haberl@tuwien.ac.at), Institut f. Diskrete Mathematik und Geometrie, Wiedner Hauptstr. 8-10/104, 1040 Vienna, Austria. *L_p Intersection Bodies.*

Operators that map convex bodies to star bodies and are $\mathrm{GL}(n)$ covariant play an important role in the geometry of convex bodies. The standard example, the intersection body operator, is defined using the Radon transform and is a valuation (that is, an additive function) with respect to radial addition. We classify all $\mathrm{GL}(n)$ covariant L_p radial valuations on convex bodies and show that for $0 < p < 1$ there is a unique non-trivial such valuation with centrally symmetric images. This establishes a characterization of L_p intersection bodies. Important inequalities and open problems connected with these operators are discussed. (Received September 19, 2006)