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B-108, Pomona, NJ. *Volumes of  $p$ -adic Analogues of Rational Polyhedra.*

The lattice points of a rational polyhedron  $P \subseteq R^n$  correspond to a semi-algebraic subset of the  $p$ -adic space  $Q_p^n$ . The principal value volume of the semi-algebraic set is given explicitly in terms of the rational generating function associated to  $P$  when  $P$  is a rational cone. (Received August 09, 2007)