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The Siegel Modular Group is the Lattice of Minimal Covolume in the Symplectic Group

Let $n \geqslant 2$. We prove that, up to conjugation, $\mathrm{SP}_{2n}(\mathbf{Z})$ is the unique lattice in $\mathrm{SP}_{2n}(\mathbf{R})$ of the smallest covolume.

Keywords: Symplectic group, arithmetic group, lattice, covolume, Prasad's volume formula.

MSC: 22E40; 11E57, 20G30, 51M25.