1163-11-1057 **Matthew C. Welsh*** (matthew.welsh@bristol.ac.uk). *Bounds for theta sums.*
For a quadratic form $Q$ in $n$ variables and a real number $M > 0$, we consider the following theta sum,

$$\sum_{\mathbf{m}\in\mathbb{Z}^n} \chi(\frac{1}{M}\mathbf{m})\mathrm{e}^{2\pi i Q(\mathbf{m})},$$

where $\chi$ is the indicator function of the unit cube $(0,1)^n$. Cosentino and Flaminio (2015) have shown that for almost all $Q$ this theta sum is $\ll_Q M^{\frac{n}{2}}(\log M)^a$ for an explicit $a > 0$ using properties of abelian actions on compact nilmanifolds. Here we present a new approach (joint with Jens Marklof, Soren Mikkelsen, and Gene Kopp) to producing bounds of the same form for almost all $Q$ using theta functions defined via the Segal-Shale-Weil representation and the geometry of $\mathrm{Sp}(n,\mathbb{Z})\backslash\mathrm{Sp}(n,\mathbb{R})$. (Received September 14, 2020)