1146-11-149   **Madeline Locus Dawsey*** (`madeline.locus@emory.edu`) and **Riad Masri** (`masri@math.tamu.edu`). *Inequalities satisfied by the Andrews* spt-*function.*

We prove Chen's conjectured inequalities for the Andrews spt-function. The proof of these inequalities is complicated by the problem that the recently obtained Rademacher-type exact formula by Ahlgren and Andersen is conditionally convergent. Instead, we consider a different formula from Ahlgren and Andersen which expresses $\mathrm{spt}(n)$ as a finite sum of algebraic numbers, in the spirit of earlier work of Bruinier and Ono for $p(n)$. We obtain the first known effective error bounds for $\mathrm{spt}(n)$,

$$\mathrm{spt}(n) = \frac{\sqrt{3}}{\pi\sqrt{24n-1}} e^{\pi\sqrt{24n-1}/6} + E_s(n),$$

where for an explicitly defined constant C and a certain logarithmic expression $q(n)$, we have

$$|E_s(n)| < C \cdot 2^{q(n)} (24n-1)^2 e^{\pi\sqrt{24n-1}/12}.$$

1