1145-11-960 **Katherine Gallagher*** (kgalla17@nd.edu), **Katja Vassilev** and **Lucia Li**. *Lacunarity of Han-Nekrasov-Okounkov q-series.*

A power series is called lacunary if "almost all" of its coefficients are zero. Integer partitions have motivated the classification of lacunary specializations of Han's extension of the Nekrasov-Okounkov formula. More precisely, we consider the modular forms

$$F_{a,b,c}(z) := \frac{\eta(24az)^a \eta(24acz)^{b-a}}{\eta(24z)},$$

defined in terms of the Dedekind η-function, for integers $a, c \geq 1$ where $b \geq 1$ is odd throughout. Serre determined the lacunarity of the series when $a = c = 1$. Later, Clader, Kemper, and Wage extended this result by allowing a to be general, and completely classified the $F_{a,b,1}(z)$ which are lacunary. Here, we consider all c and show that for $a \in \{1, 2, 3\}$, there are infinite families of lacunary series. However, for $a \geq 4$, we show that there are finitely many triples (a, b, c) such that $F_{a,b,c}(z)$ is lacunary. In particular, if $a \geq 4$, $b \geq 7$, and $c \geq 2$, then $F_{a,b,c}(z)$ is not lacunary. Underlying this result is the proof the t-core partition conjecture proved by Granville and Ono. (Received September 17, 2018)