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**Amita Malik** and **Armin Straub\*** ([straub@southalabama.edu](mailto:straub@southalabama.edu)). *Divisibility properties of sporadic Apéry-like numbers.*

Apéry-like numbers are special integer sequences, going back to Beukers and Zagier, which are modelled after and share many of the properties of the numbers that underlie Apéry's proof of the irrationality of  $\zeta(3)$ . Among their remarkable properties are connections with modular forms and a number of  $p$ -adic properties, some of which remain conjectural. A result of Gessel shows that Apéry's sequence satisfies Lucas congruences. We prove corresponding congruences for all sporadic Apéry-like sequences. While, in several cases, we are able to employ approaches due to McIntosh, Samol–van Straten and Rowland–Yassawi to establish these congruences, there is one sequence in particular, often labeled  $(\eta)$ , for which we require a finer analysis. As an application, we investigate modulo which numbers these sequences are periodic. In particular, we show that the Almkvist–Zudilin numbers are periodic modulo 8, a special property which they share with the Apéry numbers. (Received January 04, 2016)