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Bruce C Berndt, Sun Kim, M Tip E Phaovibul* (phaovib1@illinois.edu) and
Alexandru Zaharescu. *Diophantine Approximation with Partial sums of power series.*

Let $\{a_n\}_{n>0}$ be a sequence of real numbers, and $G(s) := \sum_{n=0}^{\infty} \frac{a_n}{n!} s^n$. For a nonzero rational number r , we consider the problem of approximating $G(r)$ with a partial sum of the series. In the case $a_n \equiv 1$ and $s = 1$, which gives $G(1) = e$, Sondow conjectured in 2008 that exactly two of these partial sums are also convergents to the continued fraction of e . These was proved by Berndt, S. Kim and Zaharescu in 2012. In this talk we will discuss some results and data regarding different sequences $\{a_n\}_{n>0}$. These included the case when $\{a_n\}$ are the real Dirichlet character, the coefficient of an L-series attached to an elliptic curve, or when a_n denotes the number of ways of writing n as a product of k integers. This is joint work with B. Berndt, S. Kim, and A. Zaharescu. (Received September 25, 2012)