Year: 2011 | **Vol.: 79** | **Fasc.: 3-4**

Title: q-series: dimension estimates, linear independence

Author(s): Peter Bundschuh and Keijo Väänänen

Entire transcendental solutions f of functional equations $f(q^m z) = R_0(z)f(z) + R_1(z)$ with polynomial coefficients R_0, R_1 are arithmetically studied. The purpose of this note is to report on recent progress on lower bounds for the dimension of the K-vector space generated by 1 and the values of these f and their derivatives at m successive powers of q, where K is $\mathbb{Q}$ or an imaginary quadratic number field. In favorable circumstances, linear independence can be obtained, even in a quantitative form.

Address:
Peter Bundschuh
Mathematisches Institut
Universität zu Köln
Weyertal 86-90
50931 Köln
Germany

Address:
Keijo Väänänen
Department of Mathematical Sciences
University of Oulu
P. O. Box 3000
90014 Oulu
Finland