

Some Aspects of Poly-Bernoulli Numbers

MASANOBU KANEKO

The poly-Bernoulli number, which is a generalization of the classical Bernoulli number, is a rational number $\mathbb{B}_n^{(k)}$ given by the generating series

$$\frac{Li_k(1 - e^{-t})}{1 - e^{-t}} = \sum_{n=0}^{\infty} \mathbb{B}_n^{(k)} \frac{t^n}{n!}.$$

Here, for any integer k , $Li_k(z)$ denotes the formal power series $\sum_{n=1}^{\infty} \frac{z^n}{n^k}$ (this is the “poly-logarithm” series when k is positive).

In a joint work with late Tsuneo Arakawa, we studied a certain zeta function which gives, as special values, poly-Bernoulli numbers on one hand and multiple zeta values on the other.

In this talk, we present and discuss several further appearances of poly-Bernoulli numbers in various contexts. The talk is largely expository.