1100-11-304 **Yasuyuki Kachi*** (kachi@math.ku.edu), Snow Hall 405, 1460 Jayhawk Boulevard, Lawrence, KS 66045-7523, and **Pavlos Tzermias** (tzermias@neptune.math.upatras.gr), 26500 Rion, Patras.
Generalization of Bernoulli polynomials and analytic continuation of Riemann-Hurwitz zeta function. Preliminary report.

We all know that $f_n(k) = 1^n + 2^n + 3^n + \cdots + k^n$; $n = 1, 2, ..$ are polynomials in k. In part because $f_n(k) = \zeta(1, -n) - \zeta(k + 1, -n)$ where $\zeta(s, x) := \sum_{j=0}^{\infty}(s + j)^{-x}$ is Riemann-Hurwitz zeta function, $f_n(s)$, or $B_n(s) := (\partial/\partial s)\, f_n(s - 1)$ (Bernoulli polynomials), had been under intense scrutiny. Dozen generalizations were crafted. Among all, Akiyama-Tanigawa's Pascal-like triangle (ATT) is striking. While $B_n(s)$ reflect much of the trait of $\zeta(s, x)$, they alone do not have a capacity to recover $\zeta(s, x)$. We (1) define a double-sequence $\{m_{i,j}(t, s)\}$ of polynomials using $Ler(z, s, x) := \sum_{j=0}^{\infty} z^j (s + j)^{-x}$. (2) For each $n = 1, 2, ..$ write $\zeta(s, x)$ as a series involving $m_{i,j}(t, s)$ over $\{x; \text{Re } x > -n\}$. This differs from the classical Euler sum and a recent work by Rubinstein. (3) $\{(\partial^2/\partial t \partial s) m_{i,j}(t, s)|_{s=t=1}\}$ is ATT. Thus $\zeta(1, x)$ is written as a sum involving numbers in ATT. (4) Analyze automorphisms on the algebraic curves $C_{i,j} := \{m_{i,j}(t, s) = 0\}$ in conjunction with the functional identity for $Ler(z, s, x)$ by Apostol and Berndt. (Received February 10, 2014)