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General Convolution Identities for Bernoulli and Euler Polynomials

Using identities for difference operators and tools from probability theory, very general convolution identities of order $k \geq 2$ can be obtained for Bernoulli and Euler polynomials. This is achieved by applying an elementary result on uniformly distributed random variables. The resulting identities depend on k positive real parameters and I show, in particular, that the well-known identities of Miki and Matiyasevich for Bernoulli numbers are special cases of the same general formula.If time allows, I will present an explicit formula for the polynomial part of a restricted partition function, using similar methods. (Joint work with Christophe Vignat).