Melkamu Zeleke* (zelekem@wpunj.edu), 300 Pompton Road, Wayne, NJ 07470, and Mahendra Jani and Louis W. Shapiro. On Combinatorial Interpretations of Shapiro’s Identities Involving some Elements of the Bell Subgroup. Preliminary report.

The motivation for our current work is the combinatorial interpretation given to Shapiro’s identity involving the Lagrange subgroup element \((1, zC(z)^2)\), where \(C(z)\) is the generating function of the Catalan numbers. In this talk, we provide a combinatorial proof of Shapiro’s identity involving the Central Trinomial Numbers and the Bell subgroup element \((M(z), zM(z))\), where \(M(z)\) is the generating function of the Motzkin numbers, and settle a uniqueness question Shapiro asked regarding this identity. We then look at the Bell subgroup element \((T(z), zT(z))\), where \(T(z)\) is the generating function of the ternary numbers and provide an alternative combinatorial interpretation of some identities involving this array using \(K\)-trees. (Received September 23, 2018)