1021-11-44 **Hasan Coskun*** (hasan_coskun@tamu-commerce.edu), Department of Mathematics, Binnion Hall, Room: 314, 2600 S. Neal St., Commerce, TX 75428. *An Elliptic BC_n Bailey Lemma and Euler's Pentagonal Number Theorems.*

An elliptic BC_n generalization of the classical two parameter Bailey Lemma will be given, and a basic (trigonometric) one parameter BC_n Bailey Lemma will be presented as a limiting case. Several summation and transformation formulas associated with the root system BC_n will be proved as applications, including a multiple ${}_6\varphi_5$ summation formula. This identity will be specialized to generate an infinite family of multiple multilateral series. Standard determinant evaluations are then used to compute D_n generalizations of Euler's Pentagonal Number Theorem in terms of determinants of theta functions. (Received August 06, 2006)