1077-30-2698 **Tamas Forgacs** (tforgacs@csufresno.edu) and **Andrzej Piotrowski*** (apiotrowski@uas.alaska.edu). *Polynomial Coefficients of Differential Operators which are Diagonal with respect to the Hermite Basis.* Preliminary report.

Let $\{\gamma_k\}$ be a sequence of real numbers and let $\{H_k(x)\}$ denote the set of Hermite polynomials. Define a linear operator $T : \mathbb{R}[x] \to \mathbb{R}[x]$ by declaring $T[H_k(x)] = \gamma_k H_k(x)$ for all k. This linear operator can be represented in the form $T = \sum_{k=0}^{\infty} T_k(x) D^k$, where D denotes differentiation with respect to x. We seek to determine an explicit form of the polynomial coefficients $T_k(x)$ in the differential operator representation. (Received September 22, 2011)