1096-05-2531 **Gwyneth R Whieldon*** (whieldon@hood.edu), 401 Rosemont Ave, Frederick, MD 21701, and **Alison G Schuetz**, 401 Rosemont Avenue, Frederick, MD 21701. *Combinatorial Interpretations of Coefficients of Iterated Polynomials.* Preliminary report.

Given a polynomial of the form $f(x,z) = g(z) + h(x)$, let $f^{(0)}(x) = 0$ and $f^{(n)}(x) = g(f^{(n-1)}) + h(x)$ for $n \geq 1$. Set $f^{\infty}(x) = \lim_{n\to\infty} f^{(n)}(x)$. We give conditions on $g(z)$ and $h(x)$ so that the power series $f^{\infty}(x) = \sum_{k=0}^{\infty} a_k x^k$ exists, and provide combinatorial interpretations of the coefficients a_k in terms of polygonal partitions. In particular, we provide examples of $g(z)$ and $h(x)$ such that the nonzero coefficients of $f^{\infty}(x)$ are the Catalan numbers $C_k = \frac{1}{k+1}\binom{2k}{k}$, the multivariate Fuss-Catalan numbers $C_k^{(d)} = \frac{1}{(d-1)k+1}\binom{dk}{k}$, and a "non-homogeneous" generalization of the Fuss-Catalan numbers. (Received September 17, 2013)