1015-13-219 **Catalin Ciuperca*** (catalin.ciuperca@ndsu.edu), Department of Mathematics, 300 Minard Hall, North Dakota State University, Fargo, ND 58105, and **Florian Enescu** and **Sandra Spiroff**. *Asymptotic properties of powers of ideals.*

Let A be an integral domain and I, J ideals in A with $J \subseteq \sqrt{I}$. Then, for each positive integer n, one can define $v_I(J,n)$ to be the largest integer k such that $J^n \subseteq I^k$. Samuel proved that the sequence $\{v_I(J,n)/n\}_{n\geq 1}$ has a limit and asked whether it is always a rational number. The question has been positively answered by Rees and Nagata.

In this talk we discuss some generalizations of their work. Let $J_1, \ldots, J_k$, I be ideals in A such that $J_i \subseteq \sqrt{I}$ for all i. We study the structure of the cone $C = C(J_1, \ldots, J_k; I)$ generated by

$$\{(m_1, \ldots, m_k, n) \in \mathbb{N}^{k+1} \mid J_1^{m_1} \ldots J_k^{m_k} \subseteq I^n\}.$$

(Received February 06, 2006)