1107-13-395 **Catalin Ciuperca*** (catalin.ciuperca@ndsu.edu), North Dakota State University, Department of Mathematics #2750, PO BOX 6050, Fargo, ND 58108-6050. *Integral closure of equimultiple ideals.*

Let (R, m) be a formally equidimensional local ring and $J \subseteq I$ ideals of R with J equimultiple of height h. We begin by observing that the multiplicity function $e(I^n/J^n)$ is eventually a polynomial function $P_{J,I}(n)$ of degree at most h, with equality if and only if $J \subseteq I$ is not a reduction. As a consequence, we are able to show that for each $k = 0, \ldots, h$ there exists a largest ideal $J_{[k]}$ containing J such that the degree of $P_{J,J_{[k]}}(n)$ is at most $h - k - 1$, extending a construction of Shah originally done for m-primary ideals. We are also able to show that if the Rees algebra $R[Jt]$ satisfies Serre's S_2 property, then the degree of $P_{J,I}(n)$ is either $h - 1$ (when $J \subseteq I$ is a reduction) or otherwise h. (Received January 19, 2015)