999-13-222 **C-Y. Jean Chan*** (`cchan@uark.edu`), **Jung-Chen Liu** and **Bernd Ulrich**. *The colengh and multiplicity of an $\mathfrak{m}$-primary ideal.* Preliminary report.

Let R be a local ring with infinite residue field (*resp.* a graded polynomial ring over a field) and let $\mathfrak{m}$ be the maximal ideal (*resp.* the maximal graded homogeneous ideal). For any $\mathfrak{m}$-primary ideal I, we would like to relate the length of R/I to the Hilbert-Samuel multiplicity of some ideals closely related to I.

In the local case, if R has dimension ≤ 2, the connection is established by the ideals in the same linkage class of complete intersection with I. In the graded case, we use the powers of I.

The result gives rise to an expression of Buchsbaum-Rim multiplicity of a module in terms of certain Hilbert coefficients. (Received August 23, 2004)