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*j*-MULTIPLICITY OF EDGE IDEALS

The concept of *j*-multiplicity first was introduced by R. Achilles and M. Manaresi to generalize the Hilbert-Samuel multiplicity for ideals which are not *m*-primary. More precisely, let *R* be a Noetherian local ring with maximal ideal *m* and Krull dimension *n* and *I* be an ideal in *R*. We define the *j*-multiplicity *j(I)* is defined as follow when  $\ell(I) = \dim R$  (note that  $\ell(I)$  is the analytic spread of *I*) and zero otherwise

$$j(I) = (n - 1)! \lim_{k \rightarrow \infty} \frac{\lambda_R(\Gamma_m(I^k/I^{k+1}))}{k^{n-1}}.$$

Here  $\Gamma_m$  denotes the zeroth local cohomology with respect to the ideal *m* of *R* and  $\lambda$  denotes the length of  $\Gamma_m$ . In this talk first we will briefly survey some properties of *j*-multiplicity for monomial ideals and then we will see some results of *j*-multiplicity of the edge ideal of a graph.