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Cătălin Ciupercă* (catalin.ciuperca@ndsu.edu), Department of Mathematics, North Dakota State University, Fargo, ND 58105. *Growth of the length of local cohomology*. Preliminary report.

Let R be a polynomial ring $k[x_1, \dots, x_d]$ (k field of characteristic zero) and m its maximal homogeneous ideal. If I is a homogeneous ideal, Cutkosky, Tài Hà, Srinivasan and Theodorescu have proved that the limit $L = \lim_{n \rightarrow \infty} \lambda(H_m^0(R/I^n))/n^d$ exists but is not always rational.

We discuss the relation between L and other known invariants of the ideal I as well as the cases when $L = 0$. (Received August 14, 2006)