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**Lech inequalities for deformations of singularities defined by power products of degree 2.**

(English) [Zbl 1052.14008](#)

[Beitr. Algebra Geom.](#) 43, No. 1, 33-37 (2002).

Summary: Using a result from *B. Herzog* [Kodaira-Spencer maps in local algebra. Lect. Notes Math. 1597 (1994; [Zbl 0809.13011](#))] we prove the following. Let  $(B_0, \mathfrak{n}_0)$  be an artinian local algebra of embedding dimension  $v$  over some field  $L$  with tangent cone  $\text{gr}(B_0) \cong L[X_1, \dots, X_v]/I_0$ . Suppose the ideal  $I_0$  is generated by power products of degree 2. Then for every residually rational flat local homomorphism  $(A, \mathfrak{m}) \rightarrow (B, \mathfrak{n})$  of local  $L$ -algebras that has a special fiber isomorphic to  $B_0$  the  $(v+1)$ th sum transforms of the local Hilbert series of  $A$  and  $B$  satisfy the Lech inequality  $H_A^{v+1} \leq H_B^{v+1}$ .

**MSC:**

[14B12](#) Local deformation theory, Artin approximation, etc.

[13H15](#) Multiplicity theory and related topics

**Keywords:**

[Lech problem](#); [L-algebras](#); [local rings](#)

**Full Text:** [EuDML](#) [EMIS](#)