Nabeshima, Katsusuke; Tajima, Shinichi
A new method for computing the limiting tangent space of an isolated hypersurface singularity via algebraic local cohomology. (English) [Zbl 1420.13044]

Summary: Limiting tangent hyperplanes associated with isolated hypersurface singularities are considered in the context of symbolic computation. A new effective method is proposed to compute the limiting tangent space of a given hypersurface. The key of the method is the concept of parametric local cohomology systems.

The proposed method can provide the decomposition of the limiting tangent space by Milnor numbers of hyperplane sections of a given hypersurface. The resulting algorithm has been implemented in the computer algebra system Risa/Asir. Examples of the computation for some typical cases are given.

For the entire collection see [Zbl 1407.58001].

MSC:
13D45 Local cohomology and commutative rings
32C37 Duality theorems for analytic spaces
13J05 Power series rings
32A27 Residues for several complex variables

Keywords:
limiting tangent space; local cohomology

Software:
Risa/Asir