1046-14-520   **Anton Leykin*** (`leykin@math.uic.edu`). *Numerical primary decomposition.*

We establish a new approach to discover embedded components of an ideal in a polynomial ring. This not only leads to a new symbolic technique for computing primary decomposition, but also makes this problem accessible to hybrid symbolic-numerical techniques such as numerical homotopy continuation.

A collection of numerical data called *numerical primary decomposition* provides a full description of the complex variety defined by the given ideal. In particular, it serves as an alternative to Gröbner bases for solving the ideal membership problem. (Received September 05, 2008)