1030-14-376 **Anton Leykin*** (leykin@ima.umn.edu), leykin@ima.umn.edu. *Numerical primary decomposition.*

We present a concept that is a numerical counterpart of a primary decomposition of a polynomial ideal in the usual sense.

Our algorithm for the numerical primary decomposition is based on a blowing up procedure that stems from the higher-order deflation method for regularizing a system of polynomial equations. The main computational device is the numerical irreducible decomposition routine powered by the polynomial homotopy continuation methods. (Received August 07, 2007)