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Isolating the real roots of the piecewise algebraic variety. (English) Zbl 1165.14317

Summary: The piecewise algebraic variety, as a set of the common zeros of multivariate splines, is a kind of generalization of the classical algebraic variety. In this paper, we present an algorithm for isolating the zeros of the zero-dimensional piecewise algebraic variety which is primarily based on the interval zeros of univariate interval polynomials. Numerical example illustrates that the proposed algorithm is flexible.

MSC:
14P10 Semialgebraic sets and related spaces
14Q99 Computational aspects in algebraic geometry

Keywords: real root isolation; piecewise algebraic variety; semi-algebraic set; univariate interval polynomial; interval zero

Software:
ISOLATE

Full Text: DOI

References:
[1] Collins, G.E., Quantifier elimination for real closed fields by cylindric algebraic decomposition, ()

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