

## Efficient Implicitization of Hypersurfaces

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We present a new algorithm to perform implicitization of curves, surfaces and hypersurfaces. The algorithm works symbolically and numerically and reduces the implicitization problem to nullspace computations. The algorithm works for parametric equations specified by very general classes of functions and is part of the standard distribution of Maple. Several theoretical improvements and their corresponding practical optimizations are still possible with the aim to speed-up considerably the execution of the algorithm: Using modular approaches to avoid intermediate expression swell, analyze the structure of the implicitization matrices to design fast algorithms for the nullspace computation, develop a sparse implicitization theory and identify and extend the available techniques for predicting the degree of the implicit equation in advance.