High order methods for electromagnetics simulation JOHN LOVERICH, AMMAR HAKIM, Tech-X Corporation — Higher order methods in electromagnetics are of interest to the PIC community in modeling electromagnetic wave propagation in cavities. It is believed that high order numerical methods have advantages over lower order methods as they can produce equivalently accurate solutions at lower resolution and thus potentially at lower computational cost. In this paper we present the algorithm and result of electromagnetic simulations of the crab cavity using a higher than second order numerical wave propagation algorithm. Ultimately this high order scheme will be implemented in the plasma code VORPAL where it will be tested on a variety of computational plasma problems.

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