The Generalized Finite Element – Partition of Unity Method (GFEM-PU) relaxes or removes some of the limitations of the standard FEM. First, structured meshes, albeit helpful, are not required, which is an advantage in problems with motion and changing geometric configurations. Second, virtually any approximating functions, not necessarily piecewise-polynomial, can be used. In particular, singular functions can be employed to represent edge and corner singularities of electromagnetic fields.

The SCEE conference presentation will review the general principles and algorithms of GFEM-PU, as well as its applications to magnetic multiparticle problems, to corner singularities, and to the construction of general tangentially continuous vector elements. The benefits of GFEM are not free, however; we shall discuss whether they are worth the algorithmic price.

Alexander Plaks and Leonid Proekt have contributed to this talk.

REFERENCES


