GALERKIN METHOD FOR HIGHLY CONDUCTIVE PREFRACTAL LAYERS

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Abstract. In this paper we provide the piecewise linear Galerkin approximation of a second order transmission problem across a highly conductive prefractal layer of von Koch type. We firstly generate an appropriate mesh adapted to the geometric shape of the interface and then we construct a refinement algorithm consistent with a suitable estimate in appropriate weighted Sobolev spaces. We also obtain a quasi-optimal error estimate in the energy norm and finally we demonstrate the validity of our theory through numerical tests.

Keywords: *Finite elements, Transmission problems, Von Koch curve, Highly conductive layers,*