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Aaron Thomas Welters* (awelters@fit.edu). *On the field recursion method for two-component composites.*

I will discuss an abstract version of the field equation recursion method for two-component composites with isotropic phases. A derivation of the method, based on the abstract theory of composites and Fredholm operator theory, will be given with a focus on the necessary and sufficient conditions for the recursion to hold at each step. In this approach, the effective tensor \mathbf{L}_* can be interpreted as the Z -operator on a certain orthogonal $Z(2)$ subspace collection. The base case of the recursion starts with an orthogonal $Z(2)$ subspace collection on a Hilbert space \mathcal{H} , the Z -problem, and the associated Y -problem. We provide some new conditions for the solvability of both these problems and give explicit representations of the associated operators, namely, the Z -operator and Y -operator, respectively. An iterative method is then developed from a hierarchy of subspace collections and their associated operators which leads to a continued fraction representation of the initial effective tensor \mathbf{L}_* . This is joint work with Graeme Milton (Univ. of Utah) and Maxence Cassier (Institut Fresnel). (Received September 25, 2018)