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Divergence Regularization Method for Solving Ill-Posed Cauchy Problem for the Helmholtz Equation

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Abstract : A Divergence Regularization Method (DRM) is used to regularize the ill-posed Helmholtz equation where the boundary deflection is inhomogeneous in a Hilbert space H. The DRM incorporates a positive integer scaler which homogenizes the inhomogeneous boundary deflection in Cauchy problem of the Helmholtz equation. This ensures the existence, as well as, uniqueness of solution for the equation. The DRM restores all the three conditions of well-posedness in the sense of Hadamard.

Keywords : divergence regularization method, Helmholtz equation, ill-posed inhomogeneous Cauchy boundary conditions
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