

Convergence and Well-Posedness of Nonlinear Elliptic Systems

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We are concerned with the analysis of a nonlinear system formulated in real Hilbert spaces, governed by two sets of constraints and four bilinear forms. We first prove the unique solvability of the system using standard techniques from the theory of elliptic variational inequalities. We then provide a convergence criterion for its solution in terms of necessary and sufficient conditions. Furthermore, we introduce two notions of well-posedness and compare them. Finally, we present a one-dimensional example illustrating the theoretical results and highlighting the difference between these two notions of well-posedness.

References

- [1] M.-M. Boureau, L. Dafinoiu and M. Sofonea, *Convergence and Well-posedness Analysis of a Nonlinear Elliptic System*, Annals of the University of Craiova, Math. Comp. Sci. Ser., 52 (2025), 566–581

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