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Semilinear operator equations in real Hilbert spaces with Lipschitz nonlinearity

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ABSTRACT. In this paper we establish an existence and uniqueness result for the semilinear equation $Au + F(u) = f$, making only the supposition that the nonlinearity F is Lipschitz operator. We use in this study a contractive method based on the Picard-Banach fixed point theorem (the method is frequently used in the study of the variational inequalities, see the proof of the Lions-Stampacchia theorem in [4], minimization methods for convex functionals in [3], a.s.o).

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