Functional-analysis and partial difference equations

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Abstract: In this review paper, the aim is to present a functional–analytic method developed relevantly recently by the authors for the study of partial difference equations in the spaces ℓ_1 and ℓ_2. The method is demonstrated using two illustrative examples. On the same time an effort is made in order to present several other methods used by other researchers, which make use of functional analysis and operator theory.

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2.1   Introduction.

Partial difference equations (PΔEs) arise naturally in several mathematical or realistic problems and thus their study is necessary for understanding and/or solving these problems. To begin with, PΔEs were initially considered only as

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