



On Generalized Fredholm Operators in a Right Quaternionic Hilbert Space

Monia Boudhief

*University of Sfax, Department of Mathematics, Sfax, Tunisia
e-mail: boudhiafmon198@gmail.com*

Abstract

The purpose of this paper is to study and investigate a larger class of operators than Fredholm operators, namely the so-called generalized Fredholm operators, in a right quaternionic separable Hilbert space endowed with a left multiplication. More explicitly, we first prove some auxiliary results in the quaternionic setting that are needed for the development of this paper. After that, we show that some special classes of operators are generalized Fredholm operators, and we establish a characterization of generalized Fredholm operators in a specific quotient algebra. The obtained results lead to the study of the invariance of the generalized Fredholm S-spectrum of a bounded right linear operator, defined on a right quaternionic separable Hilbert space, under finite-rank commuting perturbations.

Keywords: Right quaternionic separable Hilbert space, finite-rank operators, generalized Fredholm operators, generalized Fredholm S-spectrum..