

Perturbations Analysis for Quasi-linear Generalized Inverse of Linear Operator and Applications in Nonlinear Analysis

Wang Yuwen

Y.Y.Tseng Functional Analysis Research Center,
Harbin Normal University, Harbin 150025 P.R.China

June 14, 2015

Abstract

In develop history of the theory of generalized inverse of linear operator in Hilbert apace, Y.Y.Tseng, the student of E.H.Moore, first introduced the definition of generalized inverse of linear operator in Hilbert space in 1933. Maximal Tseng's generalized inverse is called Moore-Penrose Since 1970s, the concepts of Tseng's generalized inverse or Moore-Penrose generalized inverse were extended from Hilbert space to Banach space along three direction, there were the the linear oblique projection generalized inverse; the set-valued metric generalized inverse and the Moore-penrose metric generalized inverse. In 2007, the quasi-linear generalized inverse of linear operator was introduced, which included the linear oblique projection generalized inverse and the Moore-penrose metric generalized inverse. In this summarizer, we first summarize some recent results for the perturbation for linear oblique projection generalized inverse of closed linear and applications in nonlinear analysis, and then we summarize some new results for the perturbation for Moore -Penrose metric generalized inverse or quasi-linear generalized inverse