

H-K. Xu, Bounded perturbation resilience and superiorization techniques for the projected scaled gradient method, *Inverse Problems*, Vol. 33 (2017), 044008. <https://doi.org/10.1088/1361-6420/33/4/044008>.

Abstract

Bounded perturbation resilience and superiorization techniques for the projected scaled gradient (PSG) method are studied under the general Hilbert space setting. Weak convergence results of the (superiorized) PSG method and its relaxed version are proved under the assumption that the errors be summable. It is also shown that the PSG method converges in a sublinear rate and can be accelerated to the convergence rate $o\left(\frac{1}{n^2}\right)$. Applications to linear inverse problems and split feasibility problems are discussed.