Hindawi Publishing Corporation
Abstract and Applied Analysis
Volume 2014, Article ID 912910, 2 pages
http://dx.doi.org/10.1155/2014/912910

Editorial

Nonlinear Analysis: Algorithm, Convergence, and Applications 2014

Yisheng Song,[1,2] Rudong Chen,[3] Guoyin Li,[4] Changsen Yang,[1] and Gaohang Yu[5]

[1] *School of Mathematics and Information Science, Henan Normal University, Henan, China*
[2] *Department of Applied Mathematics, The Hong Kong Polytechnic University, Hong Kong*
[3] *Department of Mathematics, Tianjin Polytechnic University, Tianjin, China*
[4] *Department of Applied Mathematics, University of New South Wales, Sydney, NSW 2052, Australia*
[5] *Jiangxi Key Laboratory of Numerical Simulation Technology, School of Mathematics and Computer Sciences, Gannan Normal University, Ganzhou, China*

Correspondence should be addressed to Yisheng Song; songyisheng1@gmail.com

Received 14 September 2014; Accepted 14 September 2014; Published 22 December 2014

Copyright © 2014 Yisheng Song et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

We are glad to achieve this special issue. This special issue was opened in late November of 2013 and closed in early February of 2014. There were 67 submissions in total, and 24 of them were accepted for publication after strict reviews, which gave important developments and applications in nonlinear analysis.

This special issue mainly concentrates on some latest developments and applications in nonlinear analysis. The topics of the accepted 22 articles cover various research fields of nonlinear analysis from theory to applications. Using techniques of nonlinear analysis, such as the fixed point theory and nonlinear spectral theory, as well as the iteration theory, many new methods and their analyzed techniques of convergence are presented for solving some nonlinear problems. Furthermore, some practical applications and numerical examples are given. These are our main aims of sponsoring this special issue.

The article by H. Zegeye and N. Shahzad studied the strong convergence of Halpern iteration (1) for a finite family of right Bregman strongly nonexpansive mappings $\{T_1, T_2, \dots, T_N\}$:

$$x_{n+1} = \alpha_n u + (1 - \alpha_n) T x_n, \quad \text{where } T = T_1 \circ T_2 \circ \cdots \circ T_N. \tag{1}$$

They obtained that the sequence $\{x_n\}$ strongly converges to a common fixed point of such a finite family in the framework of real reflexive Banach space, which applied to approximate a common zero of a finite family of maximal monotone mappings and a solution of a finite family of convex feasibility problems in real reflexive Banach spaces.

The article by L. Shi et al. introduced an iterative algorithm to solve the multiple-sets split equality problem (MSSEP) in the framework of infinite-dimensional Hilbert spaces under some more mild conditions for the iterative coefficient. The multiple-sets split equality problem (MSSEP) is the following problem:

$$\text{finding a point } x \in \bigcup_{i=1}^{N} C_i, \quad y \in \bigcup_{j=1}^{M} Q_j \quad \text{s.t. } Ax = By, \tag{2}$$

where $\{C_i\}_{i=1}^N, \{Q_i\}_{i=1}^M$ are two families of closed convex subsets of Hilbert spaces H_1, H_2, respectively, and $A : H_1 \to H_3$, $B : H_2 \to H_3$ are two bounded linear operators. It is obvious that MSSEP is called split equality problem (SEP) if $N = M = 1$; MSSEP and SEP reduce to the well-known multiple-sets split feasibility problem (MSSFP) and split feasibility problem (SFP) if $B = I$.

The article by H. He and S. Liu showed the strong convergence theorems of the CQ algorithm for H-monotone operators in Hilbert spaces by hybrid method in the mathematical programming.