FOREWORD

Special Section on Rigorous Nonlinear Analysis

This special section is devoted to the research field of rigorous nonlinear analysis from the viewpoint of integrable system theory and verified numerical computations. They play important roles for rigorously solving linear and nonlinear problems arising in various fields of scientific research including mathematics, physics, engineering and so forth. This is a series of the special sections on verified numerical computations published in Vol. 2, No. 1 (2011), Vol. 4, No. 1 (2013), Vol. 5, No. 1 (2014), and Vol. 6, No. 3 (2015), which have attracted attention of researchers in a wide spectrum of science and engineering.

This special section includes 7 regular papers. The following variety of topics is presented: diagram of stochastic cellular automata, Hirota's bilinear approach to several nonlinear equations, graphs on the periodic discrete Toda equation, rounding errors in FFT, interval arithmetic with fixed rounding mode, accurate solutions of ill-conditioned linear systems, and the embedding constant of the Sobolev type inequality. The guest editors believe that this special section invites many readers to the frontier of this emerging research field.

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Daisuke Takahashi and Takeshi Ogita
Guest Editors

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