Editorial

Collaborators for BIT volume 54

A new volume is completed, and it is time to say thank you to all, that have made this volume possible, authors, editors, printers and publishers!

But the special thank you is directed to all of you that have helped out as referees. Your work is done voluntarily as a service to the profession, and you are the ones that help us to decide which manuscripts that can be transformed into readable papers. About one manuscript in four makes it, the rest of the authors get some words on the way to get their acts together next time.

Those are the referees reporting from November 1, 2013 to October 31, 2014. Forgive me, if I missed someone deserving to be here:

<list all names in the enclosed .xls file in two columns grouped by 5>

Introduction to the contents of BIT 54:4

The papers we collect in this issue have been available online since more than half a year, and we get new contributions ready all the time.

These are the papers:

Winfried Auzinger, Othmar Koch, and *Amir Saboor Bagherzadeh* study a two point boundary value problem of an ordinary differential equation. They use a locally weighted defect for an error estimate, that can be used for adaptive mesh refinement.

Lehel Banjai and *Maryna Kachanovska* formulate the three-dimensional wave equation as a time-domain integral equation. It is discretized by a Runge-Kutta based convolution quadrature. The behavior of the kernel of this operator is established, and algorithms to compute the convolution weights are studied.

Alfonso Bueno-Orovio, *David Kay*, and *Kevin Burrage* study a Fourier spectral method for fractional-in-space differential equations. These equations are used to model super-di
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ffects in spatially extended structures. The method is applied to the Allen--Cahn equation for movement of phase boundaries, the FitzHugh--Nagumo model for impulse propagation in nerve membranes, and the Gray--Scott model for an autocatalytic chemical reaction.

Costanza Conti, Jean-Louis Merrien, and *Lucia Romani* describe an algorithm to refine a set of data vectors by repeated application of a subdivision operator to produce a sequence of even denser vector sets. New theoretical results for de Rham type Hermitian subdivisions are derived.

Catterina Dagnino, Sara Remogna, and *Paul Sablonnière* use spline quasi-interpolating projectors on a bounded interval, for the numerical solution of linear Fredholm integral equations of the second kind. Several algorithms are compared on a set of numerical examples.

Nicholas Hurl, William Layton, Yong Li, and *Catalin Trenchea* use a Crank Nicolson Leap--Frog method with the Robert Asselin Williams time filter to simulate a geophysical flow. Conditions for stability are established.

Jonas Kiessling and *Raul Tempone* derive error estimates of a finite difference scheme for option pricing in exponential Lévy models. Expressions are given for the dominating terms in the space and time discretization errors, when the payoff is subject to an exponential growth condition. Small jumps are approximated by a diffusion.

Yoshio Komori and *Kevin Burrage* derive a stochastic exponential Euler scheme for multi-dimensional, non-commutative stochastic differential equations with semilinear drift terms. Such systems are used in simulation of stiff biochemical reaction systems.

JaEun Ku studies a mixed finite element method for the primary function on unstructured meshes. It is shown that the least squares solutions are higher order perturbations of the solutions obtained by mixed and Galerkin methods. An error estimate for shape regular meshes is derived.

Yuto Miyatake and *Takayasu Matsuo* describe a general framework for finding energy dissipative or conservative Galerkin schemes, and their underlying weak forms, for nonlinear evolution equations. Properties of the discrete partial derivative method are studied to establish its limits, and possible generalizations to semidiscrete dissipative schemes.

Hamid Mraoui, Abdellah Lamnii, and *Mohamed Lamnii* derive cubic spline quasi-interpolants on Powell-Sabin partitions. The coefficients of the interpolants depend only on a set of local function values and the interpolants have optimal approximation order.

Andrew Skelton and *Allan R Willms* describe an algorithm for enclosing a given set of time series data by a continuous piecewise linear band of varying height, subject to certain constraints. The band is defined by two piecewise linear curves that lie above and below the data.

That was all! I wish you all a rewarding read,

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