Foreword

Akram Aldroubi¹ · Zuhair Nashed² · Götz Pfander³

Published online: 8 March 2021

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Sampling Theory, Signal Processing, and Data Analysis (SaSiDa) is a journal that focuses on the mathematics relating to sampling theory, signal processing, data analysis, and associated recovery problems from partial or indirect information. It aims at inducing interactions leading to cross-disciplinary advances.

The focus of the journal is on high-quality research papers. Well-written survey or expository articles about cutting-edge research topics, summarizing the state of the art, will also be considered. Seminal theoretical papers or papers that significantly advance understanding of applications or resolve important standing issues are particularly welcome.

The scope includes theoretical, computational and significant applied aspects of Sampling Theory, Signal and Image Processing, Data Analysis, reaching from traditional Fourier analytic to cutting edge methods such as Compressive Sensing, Atomic Decompositions and Deep Learning.

Details of topics covered by the journal:

Sampling theory

- Sampling of space–time deterministic or stochastic signals
- Sampling on the sphere and on more general manifolds
- Sampling on graphs
- Compressive sensing
- Sampling theory in reproducing kernel Hilbert and Banach spaces

✉ Akram Aldroubi
akram.aldroubi@vanderbilt.edu

Zuhair Nashed
zuhair.nashed@ucf.edu

Götz Pfander
pfander@ku.de

¹ Department of Mathematics, Vanderbilt University, Nashville, TN 37240, USA

² Department of Mathematics, University of Central Florida, Orlando, FL 32816-6990, USA

³ Katholische Universität Eichstätt-Ingolstadt, Ostenstraße 26, 85072 Eichstätt, Germany

- Frame theory and its applications in sampling theory
- Shift-invariant and spline-type spaces
- Approximation error analysis and local reconstructions
- Analytic number theory and lattice point methods in sampling expansions
- Sampling in coorbit theory and group representations
- Aspects of function spaces in sampling theory (Sobolev spaces, Besov spaces, Wiener amalgam spaces and others)
- Operator and functional analytic methods related to the above topics

Signal and image processing

- Audio and image processing
- Signal processing and inverse problems on graphs
- Signal transforms such as the scattering transform
- Wavelets, shearlets, Gabor expansions
- Atomic decompositions and related transforms
- Information theory and communications
- Analog to digital conversion and quantization
- Phase retrieval problems
- Control theory methods in signal processing
- Interaction between inverse problems, signal analysis, and image processing
- Operator and functional analytic methods related to the above topics

Data analysis

- Machine learning and neural networks
- High dimensional data analysis and manifold learning
- Application of frame theory in data analysis
- Mathematical foundations of deep learning
- Probabilistic methods for data analysis
- Reproducing kernel methods in machine learning and data analysis
- Inverse problems, data assimilation and uncertainty quantification
- Sparsity in data analysis
- Quantum computing and quantum learning
- Operator and functional analytic methods related to the above topics

Sampling Theory, Signal Analysis, and Data Analysis (SaSiDa), launched by Birkhäuser, is an expansion in scope and restructuring of the editorial board of the journal Sampling Theory in Signal and Image Processing (STSIP) which was founded in 2002 by A. J. Jerri to serve in part as a forum for papers emanating from SampTA (International Conferences on Sampling Theory and Applications). SaSiDa is meant for a broader audience and a wider landscape. Previous volumes of STSIP will be part of the SaSiDa archives.

Acknowledgements

We like to thank the following people for their support and contribution to the realization of SaSiDa:

- To A. J. Jerri for his pioneering work in founding STSIP that forms the basis of this journal and for facilitating the transition of STSIP to SaSiDa at Birkhäuser.
- To Hans Feichtinger, Editor-in-Chief of the Journal of Fourier Analysis and Applications (JFAA) who, as a consultant to Birkhäuser, advised us on formulating the aims and scope of SaSiDa and the selection of the editors, area editors, and honorary editors. SaSiDa, as the younger sister of JFAA in the Birkhäuser's wonderful family of journals, will seek the high standards of her role model.
- To Clemens Heine, Executive Editor of Mathematics, Birkhäuser Journals, Springer, for his leadership in launching this journal and his advice through the various stages of its development.
- To Patricia Zuberbühler, Editorial Assistant, Birkhäuser, Springer, for her meticulous work on logistical aspects of launching SaSiDa.
- To Tiana Aldroubi for her artistic and depictive design of the cover of SaSiDa.
- To all the Editors on the board of SaSiDa for accepting our invitations and for their encouraging comments. Without them there would be no SaSiDa.

Go SaSiDa!

Akram Aldroubi, Zuhair Nashed, and Goetz Pfander
Editors-in-Chief