

# *Foreword*

Sampling Theory lies at the core of many mathematical disciplines and maintains a central role in many areas of mathematics. Its applications enrich engineering and the applied sciences. The advent of new methodologies, such as compressed sensing or phase retrieval, and its inclusion into sampling theory endow it with additional features and show how nonlinear constraints on the sampled signal can be accounted for in the sampling process.

Sampling theory is still a vast growing discipline in both mathematics and the applied sciences. New challenges from the field of engineering not only lead to the incorporation of existing precise and rigorous mathematical tools but also to the development of new mathematical ideas and techniques. The collaboration between mathematicians and applied scientists is as strong as ever. The biennial international conferences on Sampling Theory and its Applications (SampTA) make these ties clearly visible.

The 10th International Conference on Sampling Theory and Applications (SampTA13) took place from July 1–5, 2013, at the Jacobs University in Bremen, Germany. SampTA13 consisted of an even mix of mathematicians and engineers interested in the many facets of sampling theory and its applications. It was the best-attended conference in the 20-year history of SampTA with over 200 participants from more than 25 countries meeting and discussing their research interests. The range of mathematical and engineering disciplines that were represented at the conference was equally impressive.

The wealth of scientific topics was reflected in the themes covered by the special sessions: Advances in Compressive Sensing • Algorithms • Circuit Design for Analog to Digital Converters • Compressed Sensing • Compressive Sensing and Applications • FFT and Related Algorithms • Finite Rate of Innovation • Harmonic Analysis • Optical and RF Systems • Sampling of Bandlimited Functions • Sampling in Bio Imaging • Sampling and Frame Theory • Sampling and Geometry • Sampling for Imaging Science • Sampling and Learning • Sampling and Quantization • Super Resolution • Time-Frequency Analysis.

As organizers we were very pleased with the outstanding scientific quality of the conference! This was due in part to excellent plenary talks and high quality presentations in the special sessions.

The spirit and breadth of SampTA13 is well represented by this Special Issue of Sampling Theory in Signal and Image Processing (STSIP) to which SampTA participants were invited to submit research paper on novel results in sampling theory. The formal reviewing process has lead to the selection of a set of 19 high quality contributions. They are collected in four STSIP issues:

- Vol. 13, No. 1, pp.1–109      • Vol. 13, No. 2, pp.111–206
- Vol. 13, No. 3, pp.111–313      • Vol. 14, No. 1, pp.1–99

We wish to thank all authors for their contributions as well as the anonymous reviewers for evaluating the submissions and for providing valuable comments that helped improve the quality of this special issue.

Peter Massopust, Götz Pfander, and Holger Rauhut, Guest Editors