



## Preface

Norbert Péter Szabó<sup>1,2</sup>  · Mihály Dobróka<sup>1</sup>

Received: 6 November 2021 / Accepted: 12 November 2021 / Published online: 2 December 2021  
© The Author(s) 2021

In the last few decades, Geophysical Inversion has shown itself as a collection of useful tools (algorithms and methods) for extracting the geological information embedded in the geophysical data. The number of papers dealing with this subject increased on a large scale and a lot of conferences dedicated to inverse problem theory and practice have been organized worldwide. Realizing this tendency, the Geophysical Department of Miskolc University has organized the “Inversion Meeting” biannually since 1995. The goal of the conference is to provide a forum for professional researchers engaged in geophysical inversion, on which they can present results in the given topic. In addition to the lectures of senior researchers, PhD students of the University of Miskolc and other universities had been invited to give presentations on their latest doctoral researches.

In 2020, a special actuality was given to the conference. It was dedicated to the 10th anniversary of the death of Professor Ferenc Steiner DSc (1932–2010), former head of the Geophysical Department, University of Miskolc, as well as an outstanding scientist of geostatistics. At the event, it was suggested researchers give lectures not only on inversion topics but geostatistical ones in honour of the famous professor.

The successful professional career of professor Steiner is entirely connected to the Department of Geophysics, which was his first and last job. He was tireless at work, infinitely precise in his search for finding the scientific truth. He was a real university professor, not only because he immediately passed on the knowledge he had acquired, but because he raised his students.

His interest and professional-scientific activity were diverse. Initially, he researched and achieved results in gravity and magnetic exploration, radiology, and geothermal energy. He was particularly successful in the interpretation of gravity data. His name is associated with the development of procedures for the separation of local and regional effects, as well as the development of several filtering techniques for a better interpretation of gravity maps. Applied science and development were not far from him. Among other things, he developed radioactive methods for determining the quality of coals, which have reached practical use. In the second period of his research carrier, his interest turned to statistics. The impact and influence of unavoidable errors and uncertainties on geophysical measurements were investigated for the evaluation and interpretation of the measurement results. Based on his qualifications as a mathematician-physicist, he has achieved several important

---

✉ Norbert Péter Szabó  
gfmail@uni-miskolc.hu

<sup>1</sup> Department of Geophysics, University of Miskolc, 3515 Miskolc-Egyetemváros, Hungary

<sup>2</sup> MTA-ME Geoengineering Research Group, 3515 Miskolc-Egyetemváros, Hungary

results with his colleagues in the field of robust, resistant geostatistical methods. The most prominent of these is the Most Frequent Value (MFV) method, which has become an integral part of many developed methods at the Department of Geophysics and in international cooperation.

Also at this year's Inversion Conference, the scientific results of Professor Steiner appeared in several presentations. For example, robust cluster analysis was established on the use of the MFV method, while a robust inversion approach was applied to evaluate astrogeodetic measurements. Image processing and tomography were improved by the use of the MFV procedure, and the noise sensitivity of the reduction to pole method was reduced by using Professor Steiner's MFV method. The results of Professor Steiner's efforts are everlasting, the conference was permeated by some of his scientific discoveries, and the discussions have shown that the results of the professor's research are the enduring values of the scientific repository of the future.

November 2021, Miskolc

Norbert Péter Szabó and Mihály Dobróka guest editors

**Funding** Open access funding provided by University of Miskolc.

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.