

Dear Editors of ACTA IMEKO Journal,

We presented our research paper *A Mechanical Analysis of Rotating-Coil Magnetometers* at the *2020 24th IMEKO TC4 International Symposium and 22nd International Workshop on ADC and DAC Modelling and Testing*. We truly appreciated the conference and we gladly accepted the invitation to send an extension of our work for a Special Issue of the ACTA IMEKO Journal. Therefore, I am writing this letter to present our extended research paper.

We have continued the activities that we presented at the conference, and we would be glad to present our new results on the topic in the ACTA IMEKO Journal. We are therefore presenting the extended research paper *Metrological Characterization of Rotating-Coil Magnetometer Systems*. The main advancements and novel contents of this paper can be summarized as:

- The mechanical sub-model is now presented in its fully non-linear writing, with a proper coupling and model order reduction techniques.
- The magnetometer, whose design was the topic of the conference paper, is now a completely functional measurement system. The main goal of this extended paper is therefore to characterize the real device.
- Mechanical measurements are performed to evaluate the vibrations in operation and they are included in the model of the system. An input observer is constructed to apply the measured vibrations to the simulated system.
- Magnetic measurements are performed to evaluate the performance of the device, in terms of accuracy of field harmonics. The flux density distribution is provided by an independent measurement in the form of Pseudo-multipoles.

We think that the work we are presenting now is a natural and valuable extension of our conference paper. It covers the expectable conclusion of this “chapter” of our research activity on the topic. We are therefore glad to present it to your journal.

The Authors