

Dear Editor,

We are writing to submit our manuscript entitled “Estimating the magnetization distribution within rectangular rock samples” for consideration for publication in Geochemistry, Geophysics, Geosystems (G<sup>3</sup>).

We present a new method for estimating the magnetization distribution within a rectangular rock sample by inverting scanning magnetic microscopy data. Our method proposes a new data-acquisition scheme aiming at sampling the magnetic induction field around the rock sample efficiently. Our method is fast and produces solutions that are stable to the presence of noise in the observed data. Because our method can be a nondestructive and powerful tool to interpret complicated paleomagnetic records presenting heterogeneous magnetization distributions, it is likely to be of great interest to the vision researchers who read your journal. We would like to stress that this manuscript describes original work and is not under consideration by any other journal. All authors approved the manuscript and this submission.

Thank you for receiving our manuscript and considering it for review. We appreciate your time and look forward to your response.

On behalf of all authors,

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