



Dear Editor,

Please find enclosed our manuscript entitled "Scanning SQUID Study of Vortex Manipulation by Local Contact" that we would like to submit to the Journal of Visualized Experiments. This paper highlights a protocol for manipulation of individual vortices in thin superconducting films, using local mechanical contact.

We consider these data suitable for the Journal of Visualized Experiments, as our protocol allows effective, deterministic manipulation of vortices. Our protocol describes a new method for vortex manipulation. Our method does not require applying current, magnetic field or additional fabrication steps, and enables manipulation of vortices at a temperature range wider than previously used methods.

The techniques presented in this paper and demonstrated in video format will be highly useful for researchers working in the field of condensed matter physics, but could also be of interest to a broader scientific community, because tunable and localized control of nano-magnetic objects is essential for various applications, such as logic elements and spintronic devices. In our studies we use scanning SQUID microscopy, but this method can be easily implemented by other scanning probe techniques, such as scanning Hall probe, or scanning magnetic tunnel junction.

Anna Kremen and Beena Kalisky designed the procedures described in the manuscript. All authors performed the experiments and analyzed the data. Finally, Eylon Persky wrote the manuscript, with contribution from all authors. During the preparation and submission of this manuscript, we have been kindly assisted by Mr. Benjamin Werth.

We have provided below contact information for four potential reviewers. Thank you for your consideration of this manuscript. We look forward to hearing from you.

Sincerely yours,
Beena Kalisky



Potential reviewers:

Ilya Sochnikov
University of Connecticut
Email: ilya.sochnikov@uconn.edu

Alexander Gurevich
Old Dominion University.
Email: gurevich@odu.edu

Vladimir Kogan
Iowa State University
Email: kogan@iastate.edu

Charles Reichhardt
Los Alamos National Laboratory
Email: reichhardt@lanl.gov