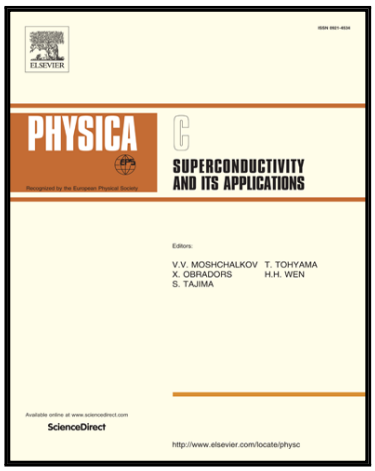

Intermittent superconductivity and unconventional vortex configurations in nanoscale superconducting noncircular systems

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Highlights

- The flux-dependent evolution of vortex states in small superconducting nanosquares is investigated.
- The spatial variations of the superconducting order parameter are very sensitive to the finite size of the sample.
- A remarkable intermittent superconducting behavior for the ground-state transition is found.
- The asymmetric single-vortex and multivortex states as well as the vortex-antivortex pairs can emerge as the metastable or ground states.