

Abstract Submitted
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Thermal fluctuations in novel artificial spin ice HENRY STOPFEL, ERIK OSTMAN, UU, AARON STEIN, CFN, UNNAR ARNALDS, UI, VASILIOS KAPAKLIS, BJORGVIN HJORVARSSON, UU, UU TEAM¹, CFN COLLABORATION², UI COLLABORATION³ — Artificial spin ice(ASI) is used as a model material to investigate frustrated systems. The square and kagome ASI has been extensively investigated since there discovery. Novel ASI structures like the Shakti lattice, have been proposed and already realized. In this structure what is not an adaption of natural magnetic materials the lattice topology leads to a high degree of degeneracy. We present here the results of Photoemission electron microscopy (using XMCD) to image the magnetization of nano-islands in a Shakti ASI. By using a three layer of Pd-Fe-Pd we can tune the Curie temperature of our magnetic material by varying the thickness of the Fe-layer. Beside a statistical analysis of the frozen-in ground state, we present also a temperature series, in which we could visualize the two energy levels of the small and large islands and due to this the different blocking temperatures for these islands. The comparison of these measurements with previous measurements on squared ASI give us a better understanding of the magnetic ordering and the thermal fluctuations in the novel Shakti ASI.

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