

Abstract Submitted  
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**Vortex Matter in Magnet –Superconductor Hybrids** IGOR LYUKSYUTOV, TAMU — Arrays of magnetic nanowires in alumina template can create highly inhomogeneous and tesla strong magnetic fields on the template surface. We discuss properties of vortex matter created by such magnetic nanostructures and an external field in thin superconducting film on the template surface. This includes possible phase diagrams, pinning properties and critical current. We predict possible types of hysteresis curves and I-V curves in such magnet-superconductor hybrid in a broad temperature range

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