

Electronic Supplementary Material

Combining two-photon lithography with laser ablation of sacrificial layers: A route to isolated 3D magnetic nanostructures

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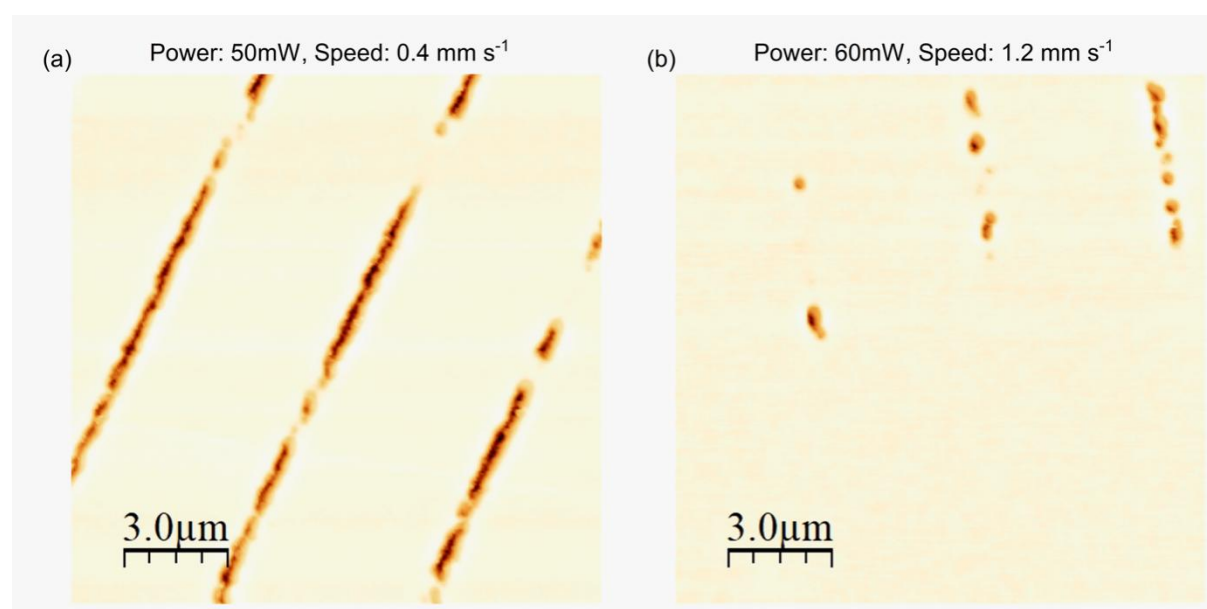


Figure S1: Examples of incomplete ablation when effective dose was too low.

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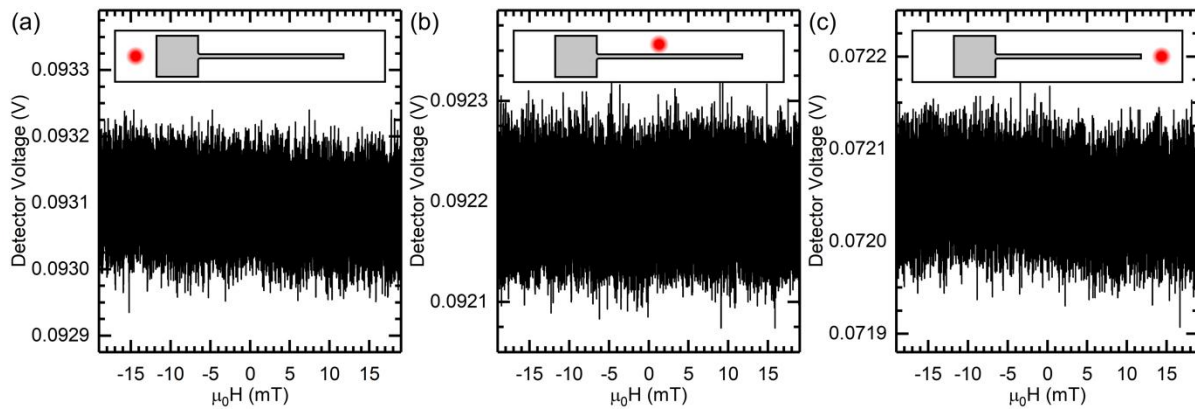


Figure S2: Magneto-optical Kerr effect signals when the laser spot was moved to (a) the left of the injection pad, (b) to the top of the wire and (c) to the right of the nanowire extremity.

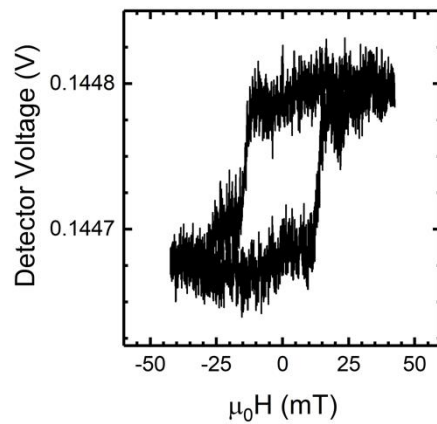


Figure S3: Magneto-optical Kerr effect signal taken upon a 3DASI system with p-polarised light and with analyser angle at 3 degrees from extinction.

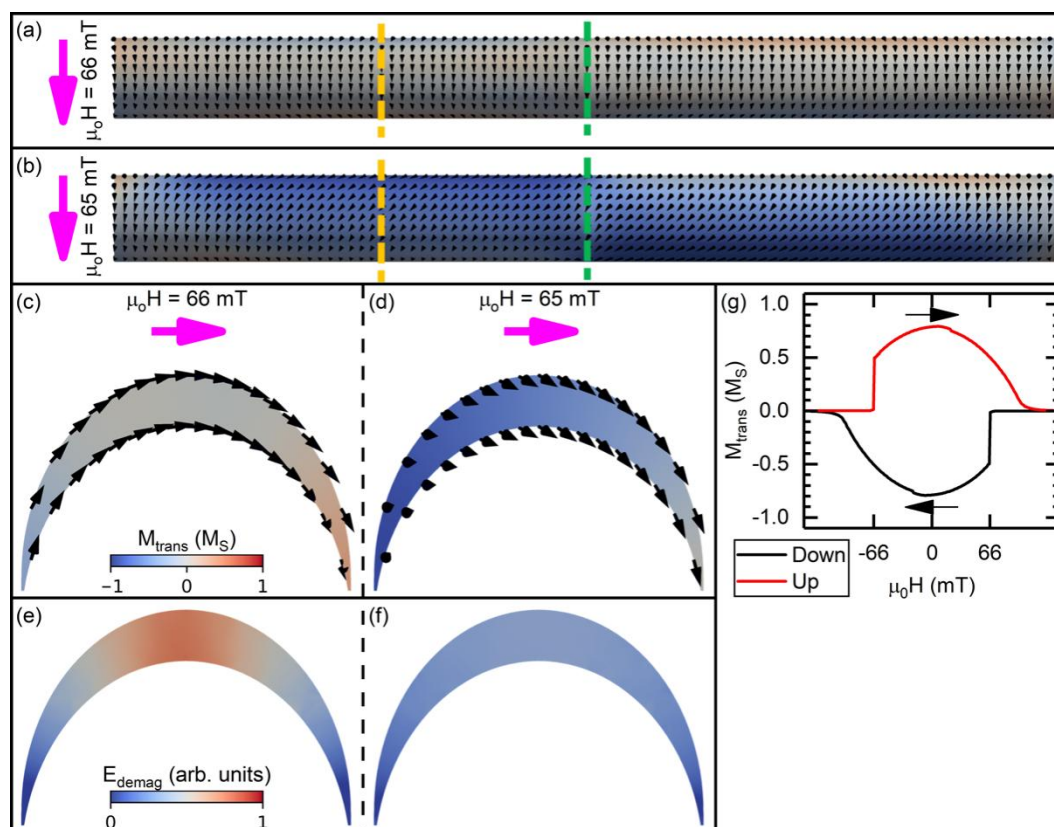


Figure S4: (a) Magnetization texture of terminating bipod geometry before transition at 66mT. (b) magnetization texture of bipod geometry after transition at 65mT. (c) cross-section of lower bipod taken at the yellow dashed line, showing surface magnetization before the switch at 66mT. (d) cross-section after the switch, at 65mT. Contrast is according to the transverse component of the magnetization (projection of long axis upon the substrate in this instance). (e) Demagnetization energy density associated with (c). (f) Demagnetization energy density associated with (d). (g) Hysteresis loop T_B with up-sweep and down-sweep separated.

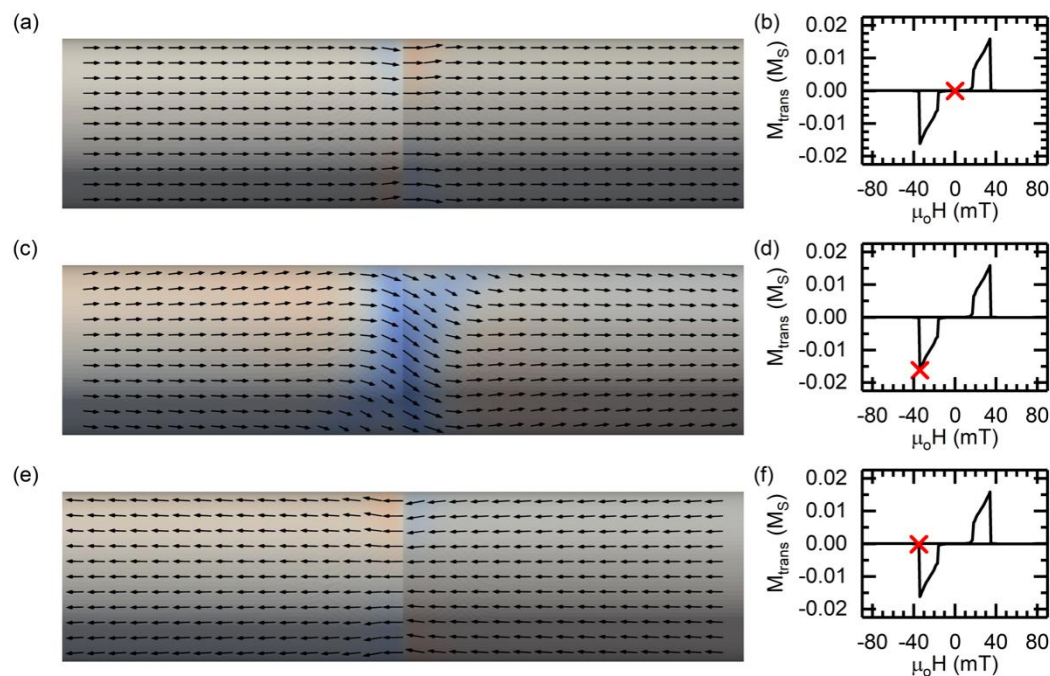


Figure S5: Micro-magnetic simulations of bipod system showing how the transverse component of magnetisation varies when the field is applied along the projection of long-axis.

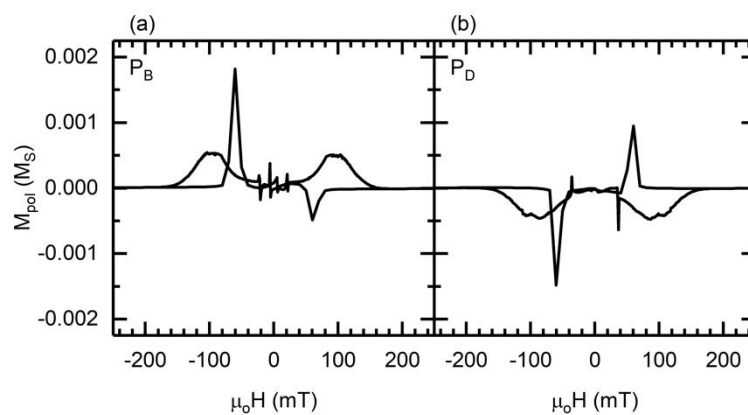


Figure S6: Micro-magnetic simulations of bipod system showing how the polar component varies with field for field transverse to long-axis.

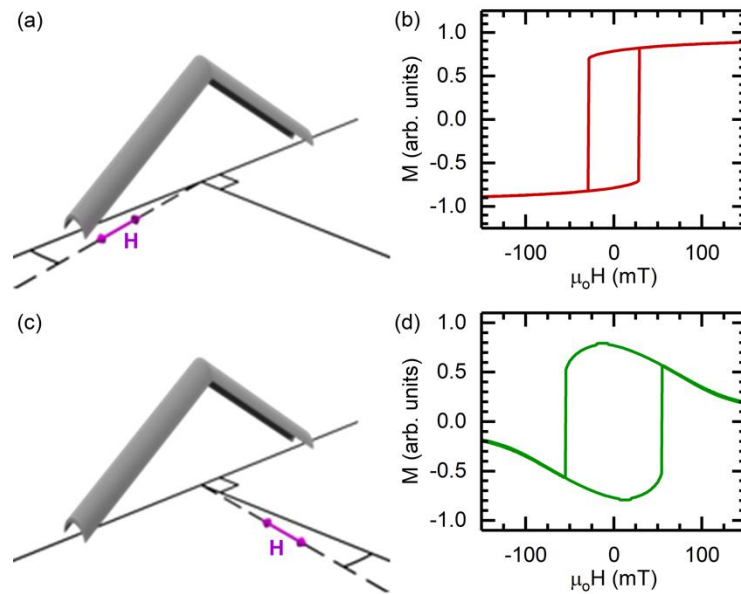


Figure S7: (a) Geometry for misaligned experimental system when considering L1 sub-lattice, where $\theta=5$ degrees. (b) Simulated longitudinal loop, corresponding to L1 sub-lattice with this misaligned geometry. (c) Geometry for misaligned experimental system when considering L2 sub-lattice, where $\theta=5$ degrees. (d) Simulated transverse loop corresponding to the L2 sub-lattice.