

## Electronic Supplementary Information

# Island formation of Er(trensals) single-ion magnets on graphene observed on the micrometer scale

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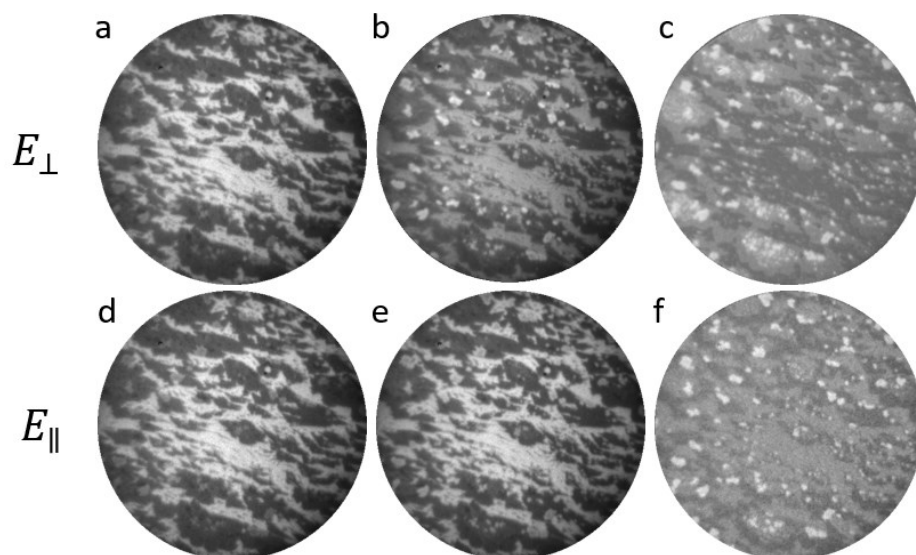
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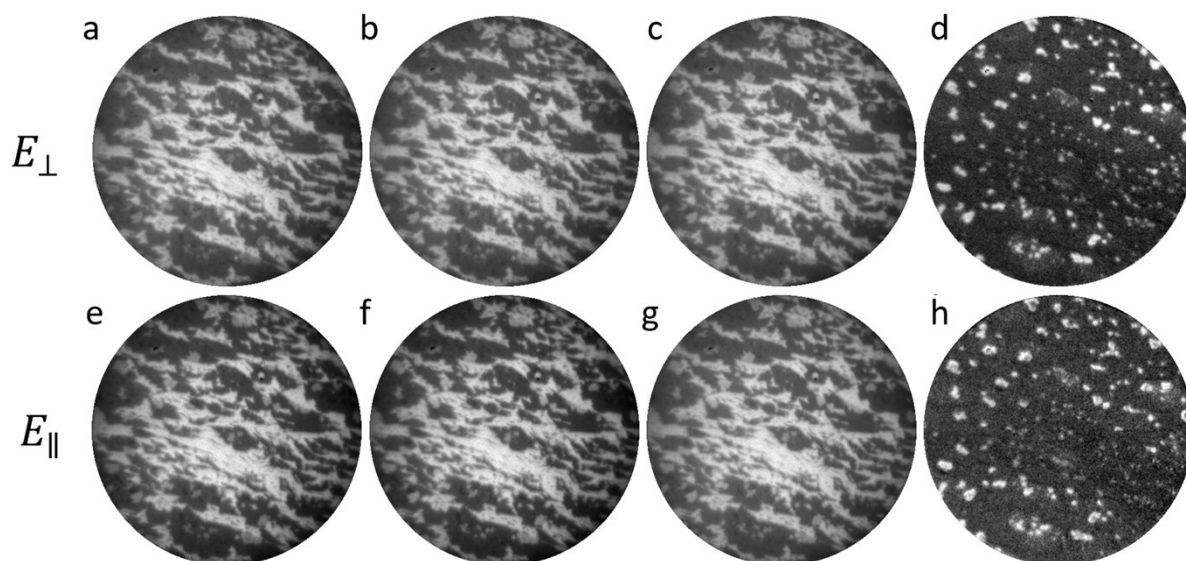
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**Figure S1.** Room-temperature X-PEEM images (28  $\mu\text{m}$  field of view) recorded at different photon energies on Er(trensal)/G/Ru(0001) in the vicinity of the C K edge with variable linear polarization. Images (a-c) and (d-f) were obtained with the oscillating electric field of the X-rays quasi-perpendicular and parallel to the sample surface, respectively. The photon energies were (a,d) 283.7 eV (pre-edge), (b,e) 285.7 eV (on resonance). Images (c) and (f) are the corresponding normalized images obtained by dividing on-resonance one by the pre-edge image.



**Figure S2.** Room-temperature X-PEEM images (28  $\mu\text{m}$  field of view) recorded on Er(trensal)/G/Ru(0001) in the vicinity of the Er  $M_5$  edge with variable linear polarization. Images (a-c) and (e-g) were taken with the oscillating electric field of the X-rays quasi-perpendicular and parallel to the sample surface, respectively. The photon energies were (a,e) 1397.7 eV, (b,f) 1402.0 eV and (c,g) 1404.0 eV. Images (d) and (h) are normalized images obtained by dividing (c) by (a) and (g) by (e), respectively.