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Griffiths phase and parimagnetism in $ErCo_2$[1] FERNANDO BARTOLOME, LUIS M. GARCIA, ICMA, CSIC - Universidad de Zaragoza, JULIA HERRERO-ALBILLOS, Materials Science Dept., Cambridge University, ANTHONY T. YOUNG, Advanced Light Source, LBNL, TOBIAS FUNK, UCSF Physics Research Laboratory — A systematic study of the paramagnetic phase of $ErCo_2$ has recently allowed to identify the inversion of the net magnetization of the Co net moment with respect to the applied field well above the ferrimagnetic ordering temperature, T_C. This phenomenon, which we have denoted *parimagnetism*, may be related with the onset of a Griffiths-like phase in paramagnetic $ErCo_2$. We have measured SANS and ac susceptibility on $ErCo_2$ as a function of temperature, applied field, and excitation frequency. Several characteristics shared by systems showing a Griffiths phase are present in $ErCo_2$, namely the formation of ferromagnetic clusters in the disordered phase, the loss of analyticity of the magnetic susceptibility and its extreme sensitivity to an applied field. Our XMCD study of the Co magnetic moment flipping process show the ocurrence of a pseudo-violation of the third Hund's rule at the para- to parimagnetic "transition".

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