

# Accepted Manuscript

The quaternary system Sm-Fe-Mo-Al and the effect of Al substitution on magnetic and structural properties of its ThMn<sub>12</sub> phase

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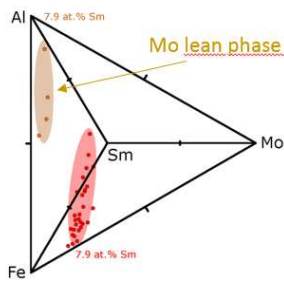
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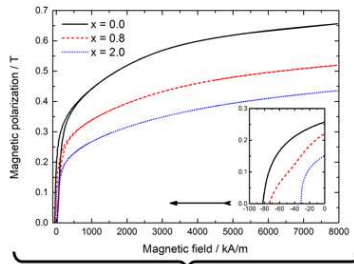
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# The influence of Al in $\text{Sm}_1\text{Fe}_{10-x}\text{Al}_x\text{Mo}_2$

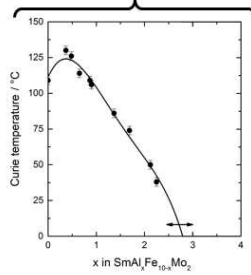
## Phase stability regions



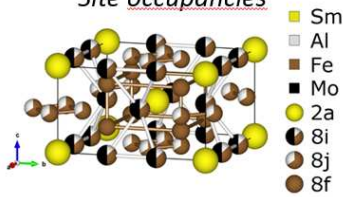
## Magnetic properties



$J_s$ ,  $H_c$  and  $T_C$  decrease  
with Al substitution

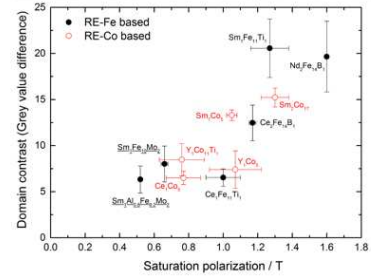
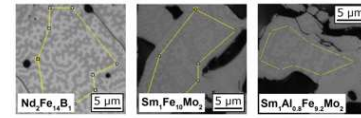


## Site occupancies



Al occupies 8i and 8j in a ratio of 1:2

## Kerr microscopy for the quantification of $J_s$



→ No meaningful calibration line  
to estimate  $J_s$  of unknown phases

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