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【623】 Anomalous magnetic domain pattern in kagome semimetal $\text{Co}_3\text{Sn}_2\text{S}_2$

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Investigating magnetism in topological materials reveals intriguing correlations between magnetic and electronic states, notably in the magnetic Weyl semimetal $\text{Co}_3\text{Sn}_2\text{S}_2$. This work employs Lorentz MEM and XMCD-PEEM to explore the temperature- and field-dependent dynamics of magnetic domains in $\text{Co}_3\text{Sn}_2\text{S}_2$. We observe spontaneous magnetic bubbles of tens of micrometers under zero-field, illustrating an intrinsic exchange bias effect in M-H curves. The asymmetric domain evolution during field-cooling and warming processes offers a microscopic view into the thermomagnetic hysteresis observed in M-T curves. Furthermore, the field-dependent behaviors of these magnetic bubbles suggest the existence of hybrid domain walls. This research contributes to our understanding of the complex magnetic phenomena in $\text{Co}_3\text{Sn}_2\text{S}_2$.

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