

Supporting Information: Double- Q ground state with topological charge stripes in the centrosymmetric skyrmion candidate GdRu_2Si_2

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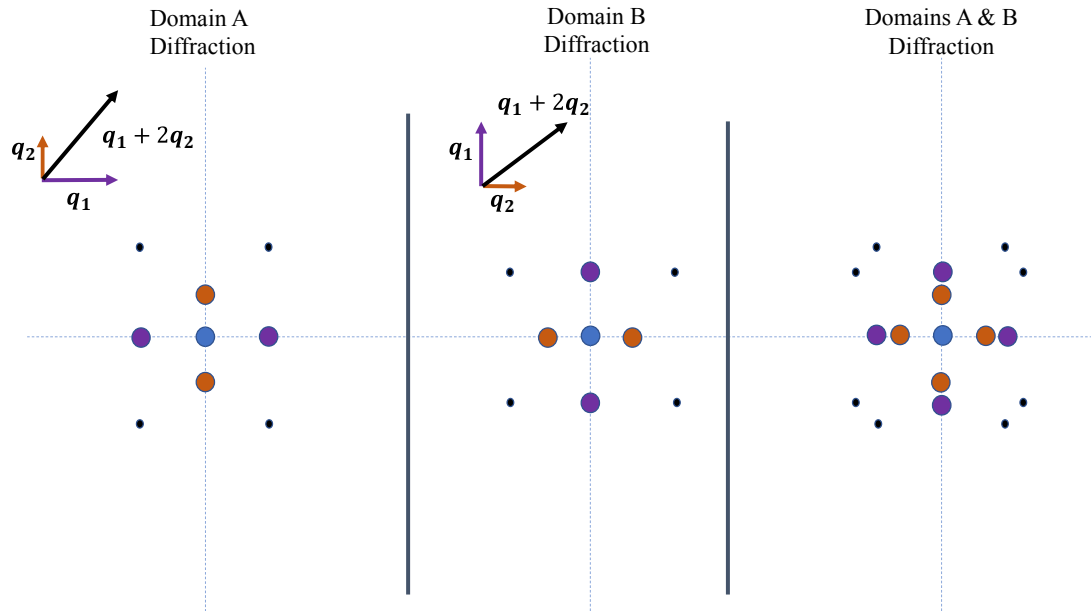


FIG S1. Schematic showing how the two magnetic domains contribute to the diffraction plane. Note that the difference in magnitude between q_1 and q_2 is exaggerated to show the diffraction spots separately. In the experiment, the difference between q_1 and q_2 is only resolved for satellites surrounding the Brillouin zone centre as shown in Fig. 3 in the main manuscript.

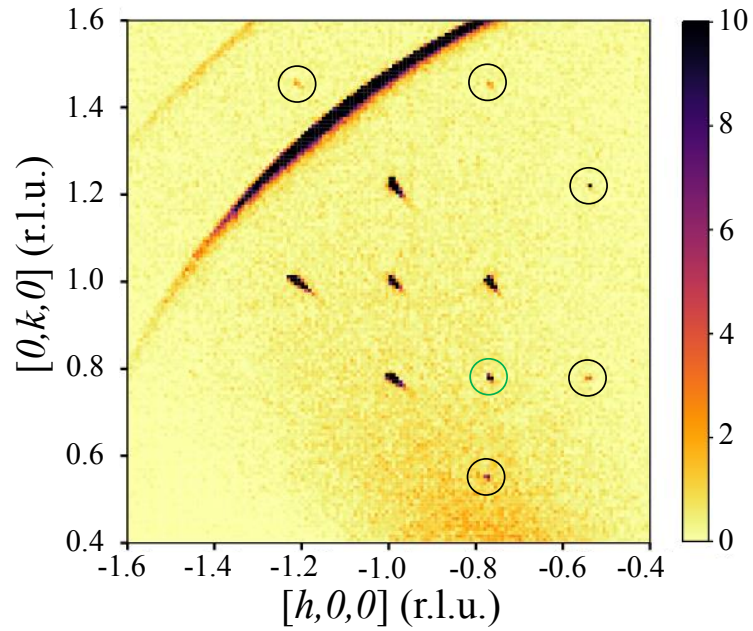


FIG S2. Single crystal neutron diffraction data in the $(h,k,0)$ plane showing satellites surrounding the $(-1,1,0)$ nuclear peak. Satellites of the type: \mathbf{q}_1 , \mathbf{q}_2 , $\mathbf{q}_1 + \mathbf{q}_2$ (circled in green) and $\mathbf{q}_1 + 2\mathbf{q}_2$ (circled in black) are observed. The arcs are powder rings due to the aluminium sample holder.