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【514】Exploring Low-Energy Excitations and Magnetic Dichroism in Resonant Inelastic X-ray Scattering of the Ferromagnetic van der Waals Material VI_3

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The ferromagnetic van der Waals Material VI_3 is proposed as a Mott insulator with S = 1 state. A distinct symmetry breaking indicative of the FM transition is observed in the Raman spectra of monolayer samples. This study investigates low-energy excitations in VI_3 using high-resolution resonant inelastic X-ray scattering (RIXS). We identify the spin wave, revealing insights into the spin dynamics and exchange interactions, and unveil an orbital redistribution through the RIXS magnetic circular dichroism (MCD), underscoring the significance of orbital degrees of freedom in the magnetism. Our findings illustrate the sensitivity of RIXS-MCD in probing ferromagnetic van der Waals materials.

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