

Constructive approaches to frustrated magnetism: Moiré and Measurements

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Frustrated magnetism arises when spins interact through competing exchange interactions which cannot be simultaneously satisfied. When the frustrations are strong enough, exotic states can emerge such as long-range entangled spin liquids. Unfortunately, solid state materials are complicated and frustrations are hard to control: To this date, quantum spin liquids are still challenging to be realized in experiments. Naturally, researchers seek more manageable experimental systems, in the hope of engineering frustrated magnetism constructively. I will discuss my recent works in two types of such manageable systems: moire heterostructures in van der Waals materials where many tuning knobs are available; and monitored quantum circuits where designer gates and measurements are exploited as new sources of frustrations.