

## **Microscopic Models of Mott Insulators - Part II**

### **Anisotropic (Relativistic) Interactions**

The second lecture highlights the role of spin–orbit coupling in shaping anisotropic interactions of correlated electron systems. We present the microscopic mechanisms and symmetry considerations underlying the emergence of Dzyaloshinskii–Moriya and Kitaev exchanges. Emphasis is placed on how spin–orbit coupling modifies the effective spin Hamiltonians, giving rise to new interaction patterns beyond isotropic models. Finally, we discuss the broader implications of anisotropic exchanges, including magnetoelectric effects and their relevance for quantum materials with strong spin–orbit entanglement.

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