

International Center for Quantum Materials

Weekly Seminar

Unified model for spin order induced polarization in multiferroics



- Time: 4:00pm, Oct. 23, 2013(Wednesday)
- 时间: 2013年10月23日 (周三) 下午4:00
- Venue: Conference Room 607, Science Building 5
- 地点: 理科5号楼607

In recent years, we have theoretically studied the microscopic origin of ferroelectricity in different multiferroic systems. We proposed a unified model [1,2] which includes purely electronic and ion-displacement contribution simultaneously to describe spin-order induced ferroelectricity. An efficient method [3] was developed to compute the model parameters from first-principles. On the basis of the unified model and density functional calculations, we explained the ferroelectricity induced by the proper-screw spin spiral [2], discovered a novel magnetoelectric coupling mechanism in which the magnitude of the polarization is governed by the exchange striction with the direction by the spin chirality [4], proposed that the ferroelectricity in the chiral-lattice magnet Cu_2OSeO_3 is due to the unusual single-spin site term [5], unraveled that the magnetoelectric effect observed in BiFeO_3 originates from the exchange striction [2].

References

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