Introduction:

1三角晶格最近邻Heisenberg model， 然后包含次近邻就有可能QSL, 所以说明其他项对其基态性质有重要影响。

2. 介绍交换阻措-Kitaev作用与QSL.

a. Kitaev model is originally considered to be a toy model

b. Khaliullin et al. propose to realize it in the 4d/5d d5 system, which the spin-orbital coupling will split a Jeff=1/2 subband.

c. The obtained Hamiltonian is Kitaev-Heisenberg model

d. Later, it extended to contains more terms, such as the \Gamma term.

3. 三角格子材料（各种，YMGO仅是其中之一）

Theoretical works on the triangular lattice

1. [Quantum spin liquid ground states of the Heisenberg-Kitaev model on the triangular lattice](https://doi.org/10.1103/PhysRevB.95.024421)

Pavel Kos and Matthias Punk

Phys. Rev. B **95** 024421 (2017)

##### 2. [Collective spin dynamics of Z2 vortex crystals in triangular Kitaev-Heisenberg antiferromagnets](https://doi.org/10.1103/PhysRevResearch.1.013002)

###### Mengqun Li, Natalia B. Perkins, and Ioannis Rousochatzakis

###### Phys. Rev. Research **1** 013002 (2019)

3. Collective spin dynamics of Z2vortex crystals in triangular Kitaev-Heisenberg antiferromagnets

Mengqun Li, Natalia B. Perkins, and Ioannis Rousochatzakis

Phys. Rev. Research 1 013002 (2019)

3. Z. Zhu, P. A. Maksimov, S. R. White, and A. L. Chernyshev,

Topography of Spin Liquids on a Triangular Lattice,

Phys. Rev.Lett. 120, 207203 (2018).

(你引的他们2017的PRL（ref.39）, 其实是否定YMGO是QSL)

4. Dirac Spin Liquid on the Spin- 1/2Triangular Heisenberg Antiferromagnet

Shijie Hu, W. Zhu, Sebastian Eggert, and Yin-Chen He

Phys. Rev. Lett. 123 207203 (2019)

Kitaev interaction in triangular lattices:

1. Spin-liquid behavior in Jeff=12 triangular lattice compound Ba3 IrTi2 O9

##### Tusharkanti Dey, A. V. Mahajan, P. Khuntia, M. Baenitz, B. Koteswararao, and F. C. Chou

##### Phys. Rev. B **86**, 140405(R) (2012)

2. Ba3MxTi3−xO9(M=Ir, Rh): A family of5d/4d-based diluted quantum spin liquids

R. Kumar, D. Sheptyakov, P. Khuntia, K. Rolfs, P. G. Freeman, H. M. Rønnow, Tusharkanti Dey, M. Baenitz, and A. V. Mahajan

Phys. Rev. B 94 174410 (2016)

3. Field-induced instability of the quantum spin liquid ground state in the Jeff=12triangular-lattice compound NaYbO2

K. M. Ranjith, D. Dmytriieva, S. Khim, J. Sichelschmidt, S. Luther, D. Ehlers, H. Yasuoka, J. Wosnitza, A. A. Tsirlin, H. Kühne, and M. Baenitz

Phys. Rev. B 99 180401 (2019)

4. Gapless spin-liquid state in the structurally disorder-free triangular antiferromagnet NaYbO2

Lei Ding, Pascal Manuel, Sebastian Bachus, Franziska Grußler, Philipp Gegenwart, John Singleton, Roger D. Johnson, Helen C. Walker, Devashibhai T. Adroja, Adrian D. Hillier, and Alexander A. Tsirlin

Phys. Rev. B 100 144432 (2019)

5. Anisotropic field-induced ordering in the triangular-lattice quantum spin liquid NaYbSe2

K. M. Ranjith, S. Luther, T. Reimann, B. Schmidt, Ph. Schlender, J. Sichelschmidt, H. Yasuoka, A. M. Strydom, Y. Skourski, J. Wosnitza, H. Kühne, Th. Doert, and M. Baenitz

Phys. Rev. B 100 224417 (2019)

6. Gapless spin-liquid state in the structurally disorder-free triangular antiferromagnet NaYbO2

Lei Ding, Pascal Manuel, Sebastian Bachus, Franziska Grußler, Philipp Gegenwart, John Singleton, Roger D. Johnson, Helen C. Walker, Devashibhai T. Adroja, Adrian D. Hillier, and Alexander A. Tsirlin

Phys. Rev. B 100 144432 (2019)

7. Anisotropic field-induced ordering in the triangular-lattice quantum spin liquid NaYbSe2

K. M. Ranjith, S. Luther, T. Reimann, B. Schmidt, Ph. Schlender, J. Sichelschmidt, H. Yasuoka, A. M. Strydom, Y. Skourski, J. Wosnitza, H. Kühne, Th. Doert, and M. Baenitz

Phys. Rev. B 100 224417 (2019)