

XY Model, its Universality Class and Superfluid

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This article is a reconstruction of material related to the KT phase transition covered in Chapter 3 in [2]. The KT phase transition in the *classical* XY model - which is most frequently seen in introduction to KT phase transition itself - is covered in [this note](#). It should be noticed that the XY model is not restricted to the classical region - we may define quantum XY degrees of freedom. For example, the θ degrees of freedom in [this note](#) can be realized with quantum rotors, which are introduced in the first chapter in [1].

References

- [1] Subir Sachdev. *Quantum Phase Transitions*. Cambridge University Press, 2009.
- [2] Xiao-Gang Wen. *Quantum Field Theory of Many-Body Systems*. Oxford University Press, September 2007.