

# Theory for High Temperature Superconducting Copper Oxides

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High  $T_c$  superconducting copper oxide was discovered over three decades ago, and remains to be the highest temperature superconductors under ambient pressure. Its mechanism and related phenomena remain to be a grand challenge in condensed matter physics. In this talk, I will discuss an effective model, which captures many essential features for the cuprates. I will then discuss the pseudo-gap state in the underdoped region and the superconductivity from doped Mott insulator point of view. Finally I will present a theory for the recently discovered copper oxide  $\text{Ba}_2\text{CuO}_{\{3+x\}}$  of  $T_c$  about 78K.

## References

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