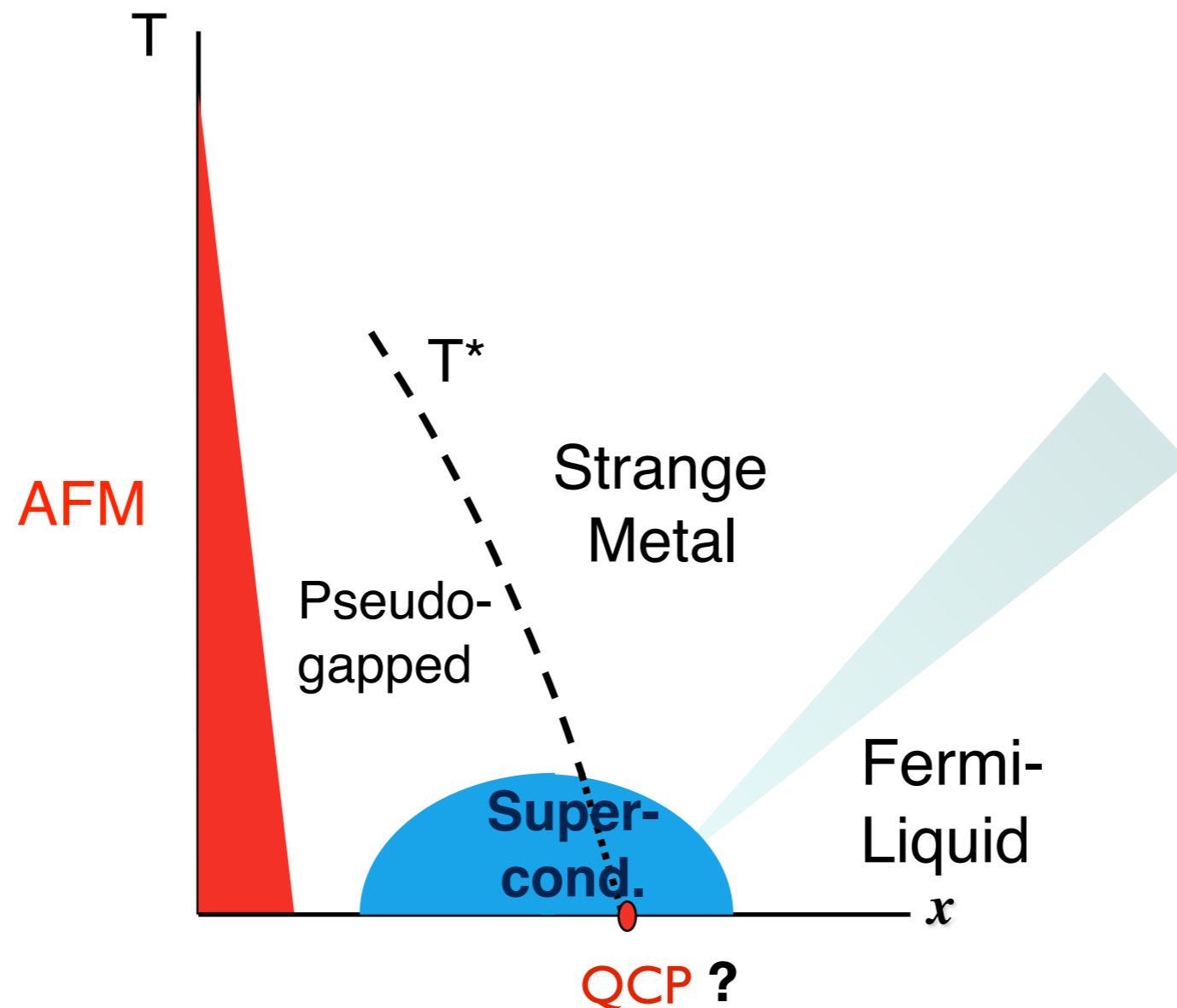


Introduction to the session on Pseudo-gap and order in hole-doped cuprates

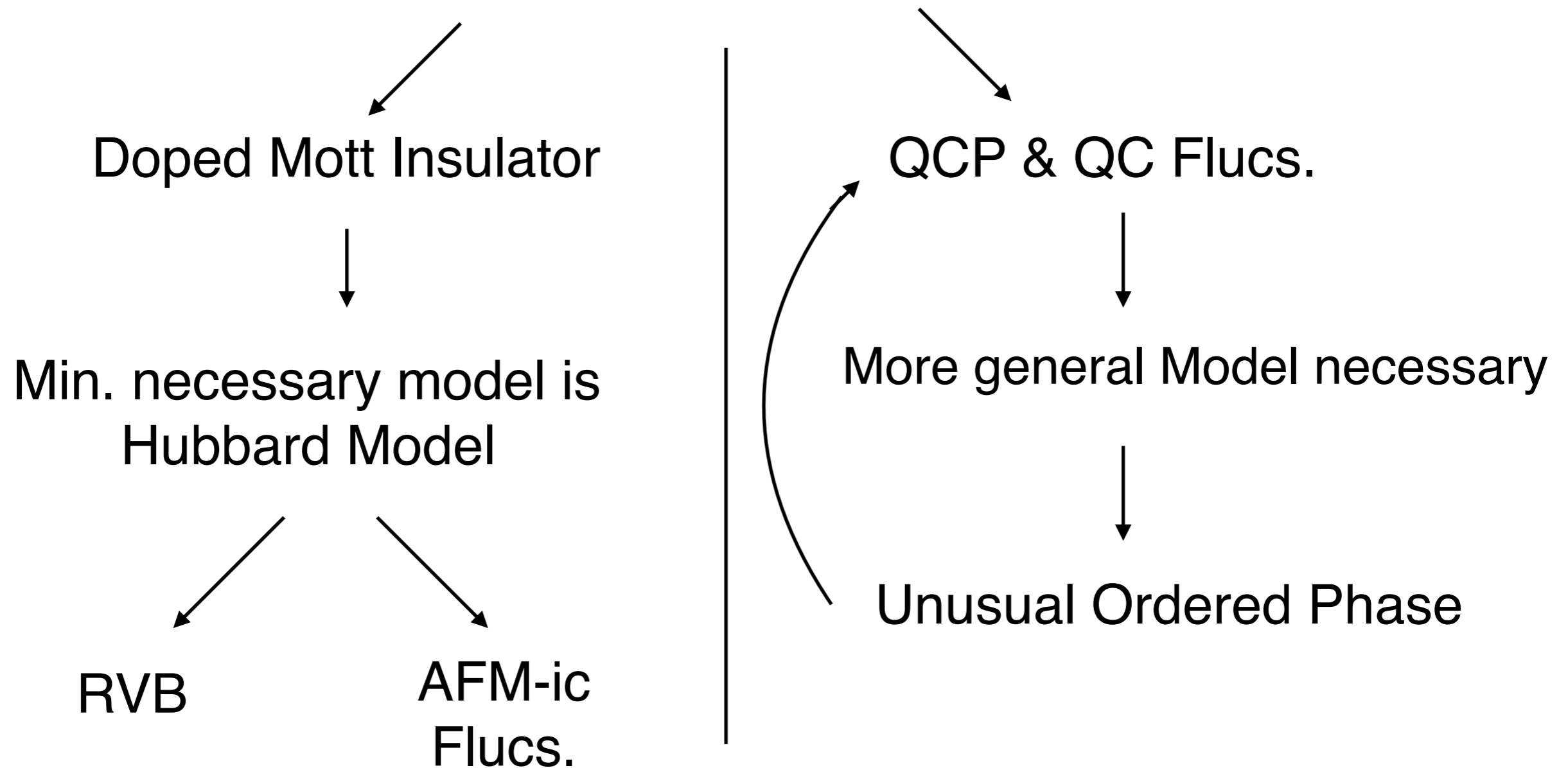
Speakers: Hashimoto, Taillefer, Boebinger, Hsieh.

Universal Phase Diagram of Hole-doped Cuprates



Immediately after discovery by Bednorz and Mueller (1986)

The great theoretical schism:
The central problem is to understand



**Significance of the pseudo-gap:
The schism is not theological anymore,**

If some questions are answered.

1. Is $T^*(p)$ a line of phase transitions? Is there a QCP?

**2. If so, what are the symmetry changes at $T^*(p)$?
Is the order parameter large enough?**

A: What min. model has such a phase?

B: Theory of the Qtm. Crit. Flucts. of such a phase.

a: must provably lead to observed normal state anomalies.

b: must provably lead to d-wave superconductivity.

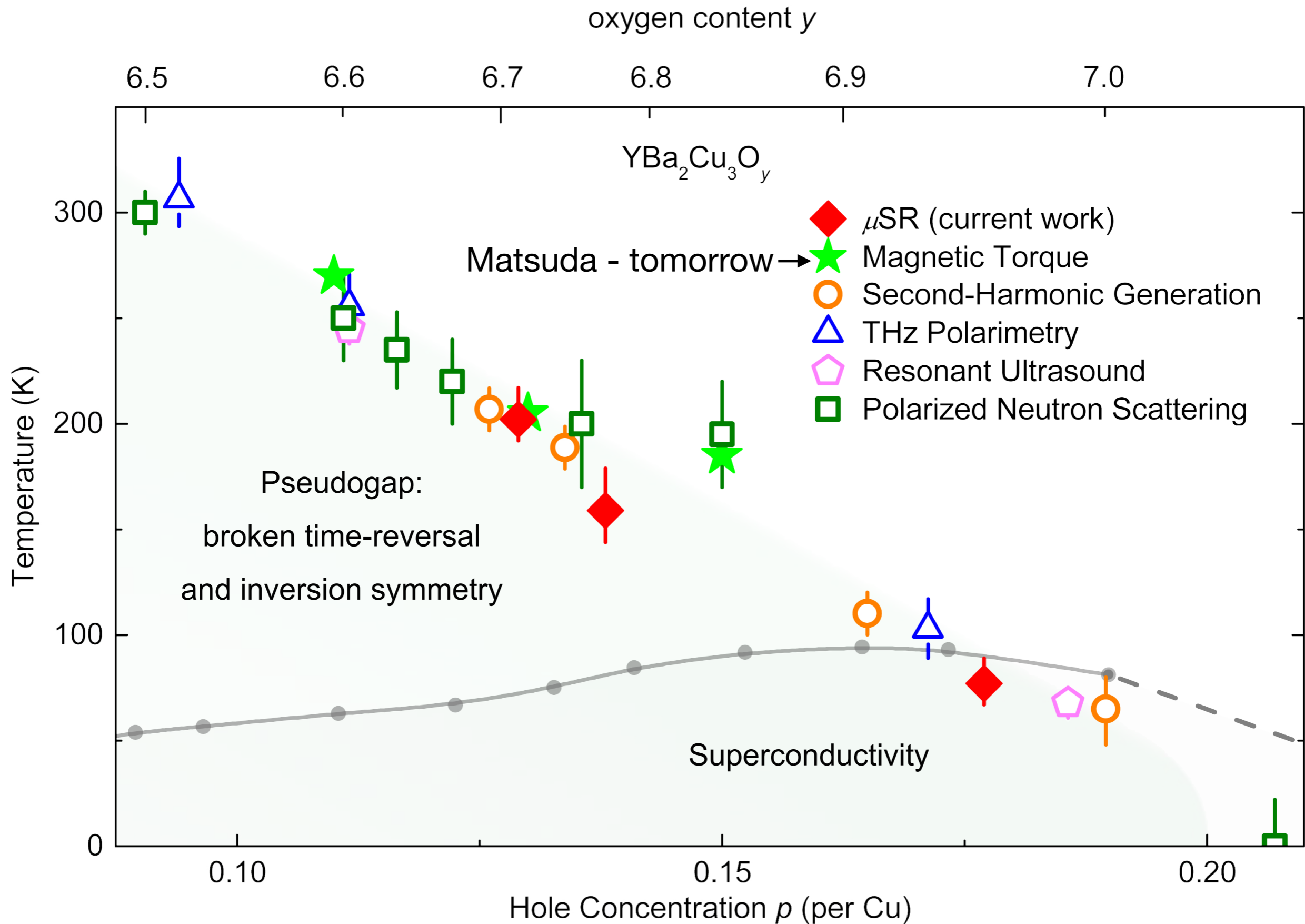
3. What are the peculiar properties of such a phase?

Calculations of the peculiar properties.

4. If the answer to 1. from experiments is NO,

We don't understand much based on existing theory.

Will need a new starting point in our thinking.



**Questions which need to be answered decisively,
towards some of which the speakers will contribute.**

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