Crash Course in Materials Science of Superconductors

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Some Comments

Important

These are working notes, so there are bound to be errors. Please keep this in mind while going through the notes. Feel free to email me if you want to provide corrections.

Note

Much of the notes derived from various sources, please checkout the references.

Tip

If you prefer to view this in a report format, you can download a formatted PDF of this presentation here.

Whats all the fuss

- Why did anyone care to begin with?
  - They didn't. Initially Heike Kamerlingh Onnes[1] and others were just interested in cryogenics.
  - Once they achieved liquid Helium, they asked why note study conductive metals at these temperatures.
  - In 1911 Kamerlingh Onnes started with elemental Mercury, the field of superconductivity (SC) was born.
- Physcist focused on measurement of other elemental solides and a theory.
- Observation of SC in Nb is really what begun technological use.

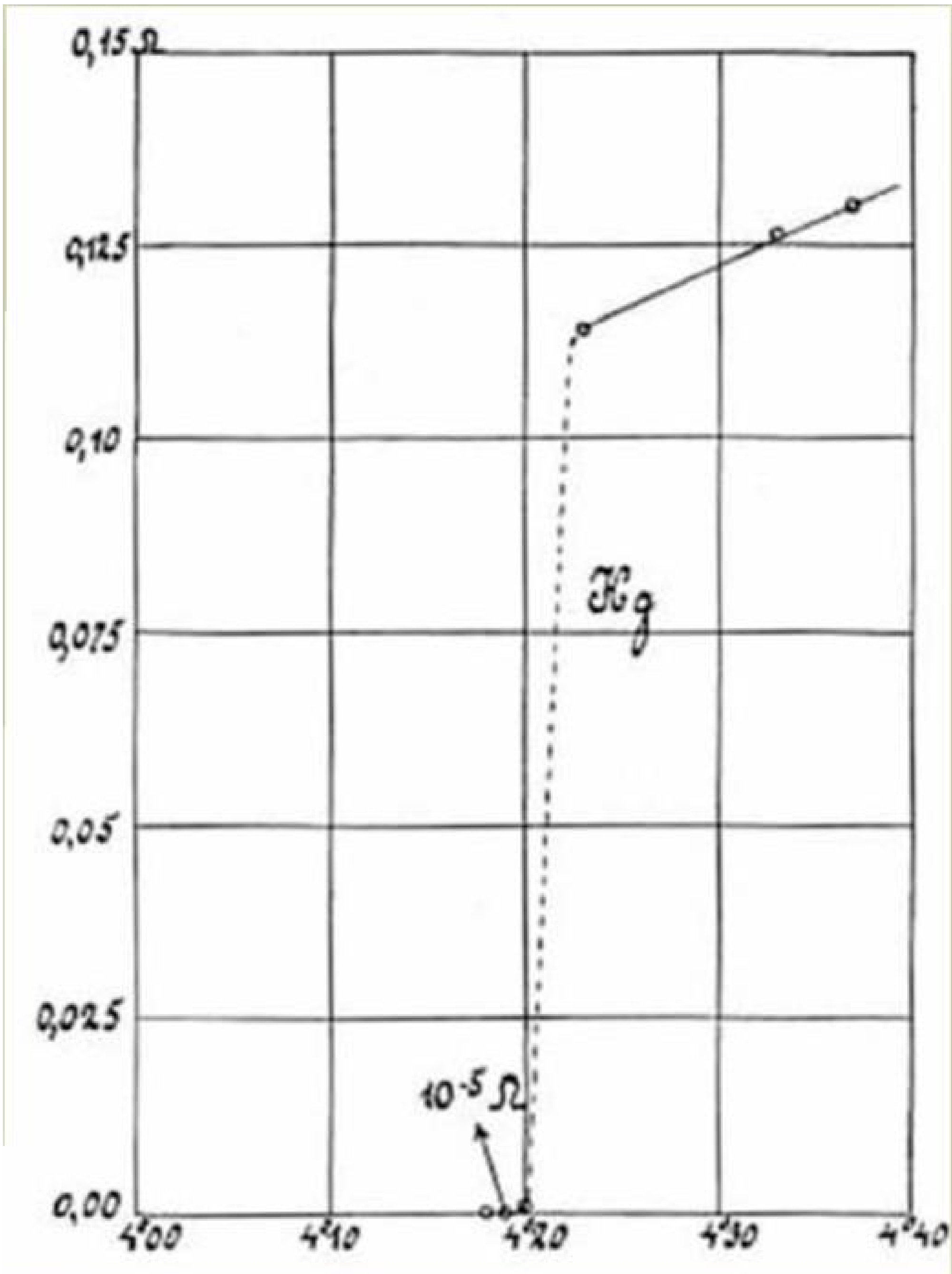

Figure 1: Original plot of Hg transition temperature to SC phase[1]

SC: Superconductivity Nb: Niobium

Technological Interest

Backmatter

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> **Note**
>
> This presentation can be viewed online at https://stefanbringuier.github.io/BayesianOptNotes.
> To export `revealjs` presentations to pdf, press 'e' then 'ctrl-p' 'save as pdf'

> **Tip**
>
> A report formated PDF of this presentation can be downloaded here.

References

1. Delft, D. van & Kes, P. The discovery of superconductivity. *Physics Today* **63,** 38–43 (2010).
2. Speller, S. *A materials science guide to superconductors and how to make them super.* (Oxford University Press, 2022).

Outline

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