

# SUPERCONDUTIVIDADE

Trabalho realizado por:

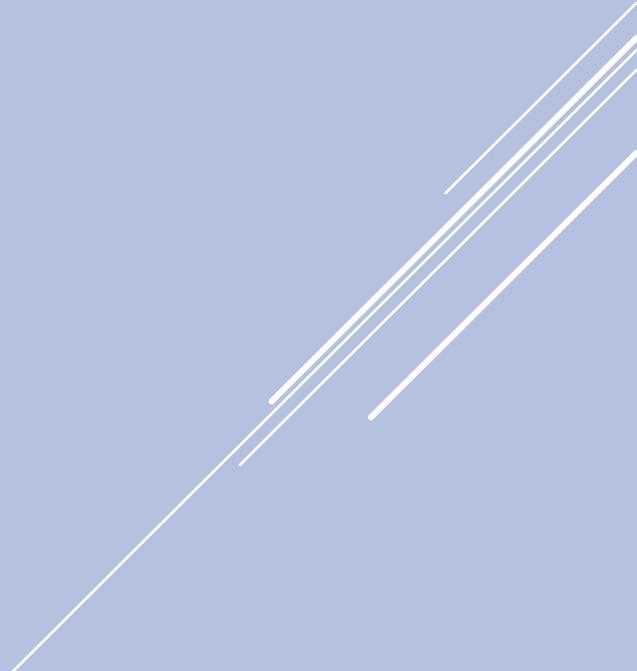
Joana Feio

Pedro Coelho

Pedro Pereira

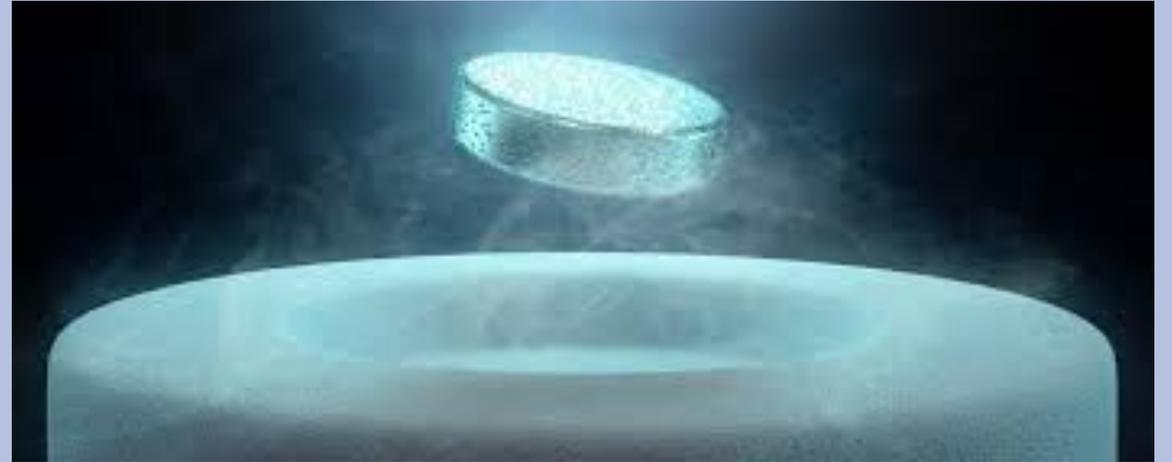
Vicente Rosa

Monitor: Rafael Almeida

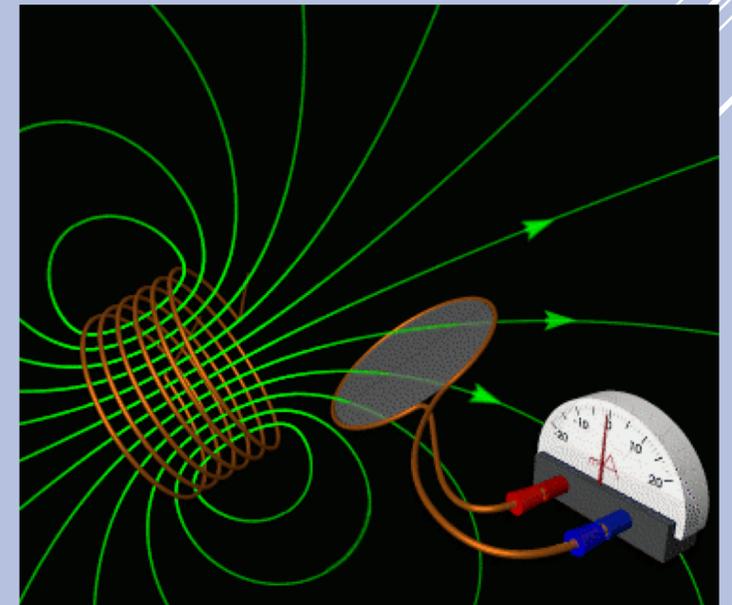
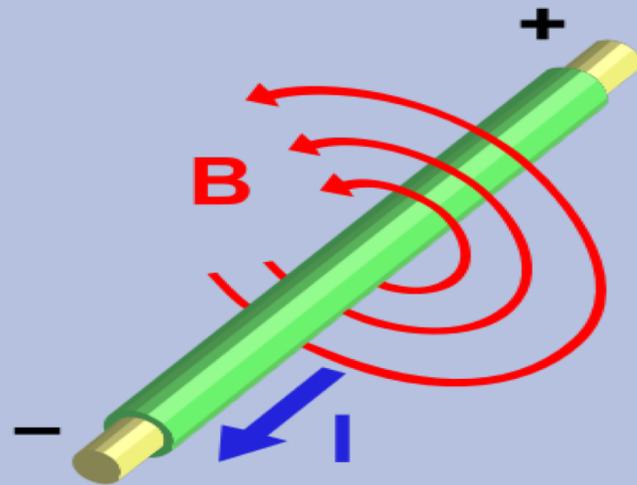
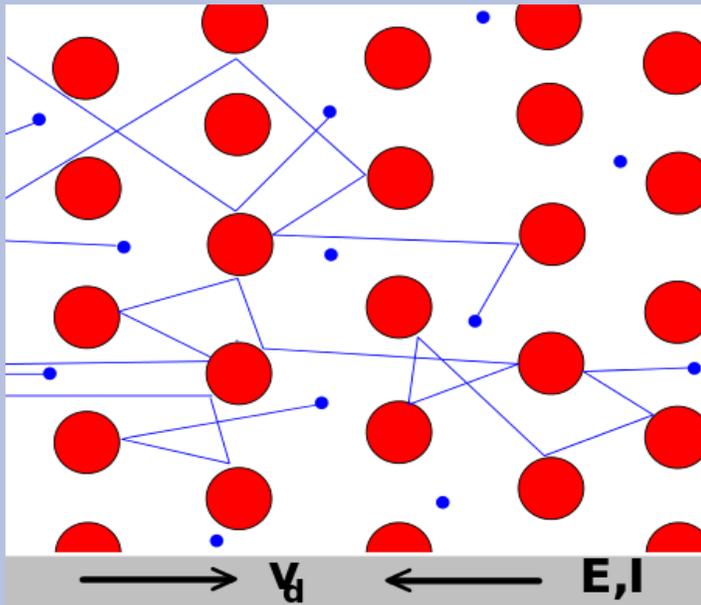
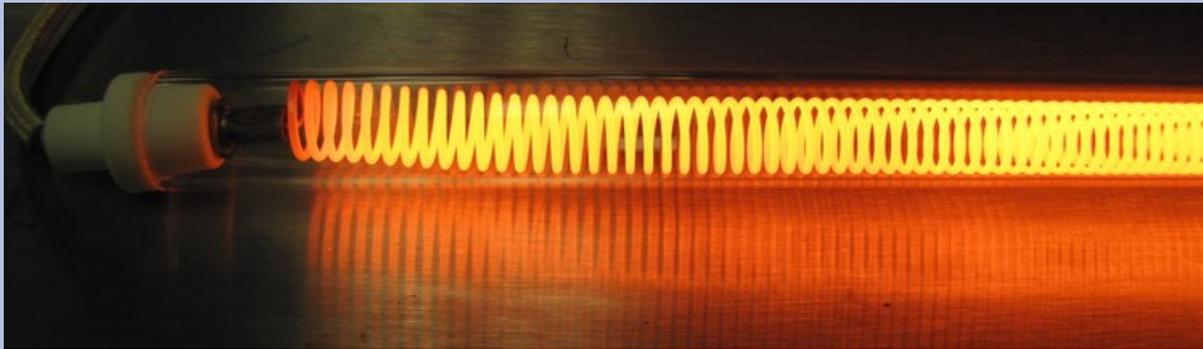
Decorative white lines consisting of several parallel diagonal lines extending from the bottom right towards the top right of the slide.

# INTRODUÇÃO

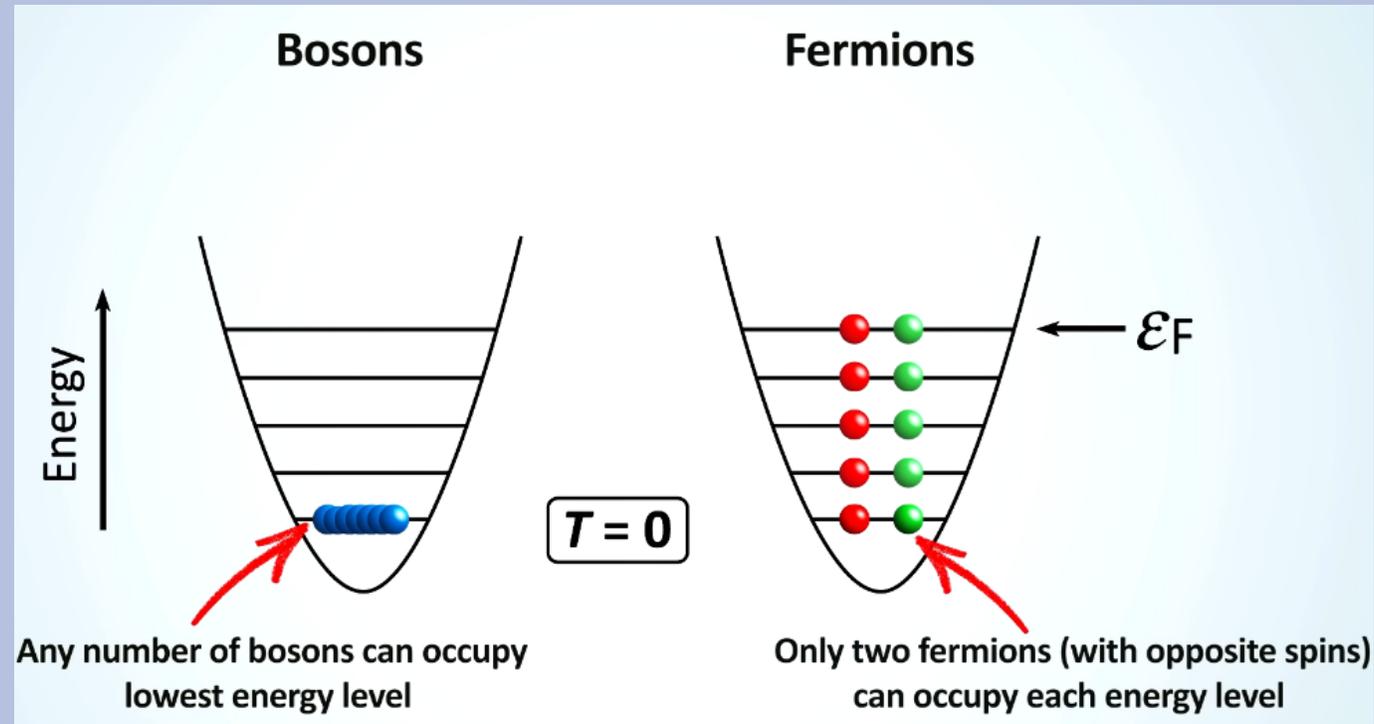
- ▶ O que é a supercondutividade
- ▶ As experiências realizadas
- ▶ As aplicações dos supercondutores



# FENÓMENOS FUNDAMENTAIS DE ELETROMAGNETISMO



# SUPERCONDUTIVIDADE – TEORIA MICROSCÓPICA

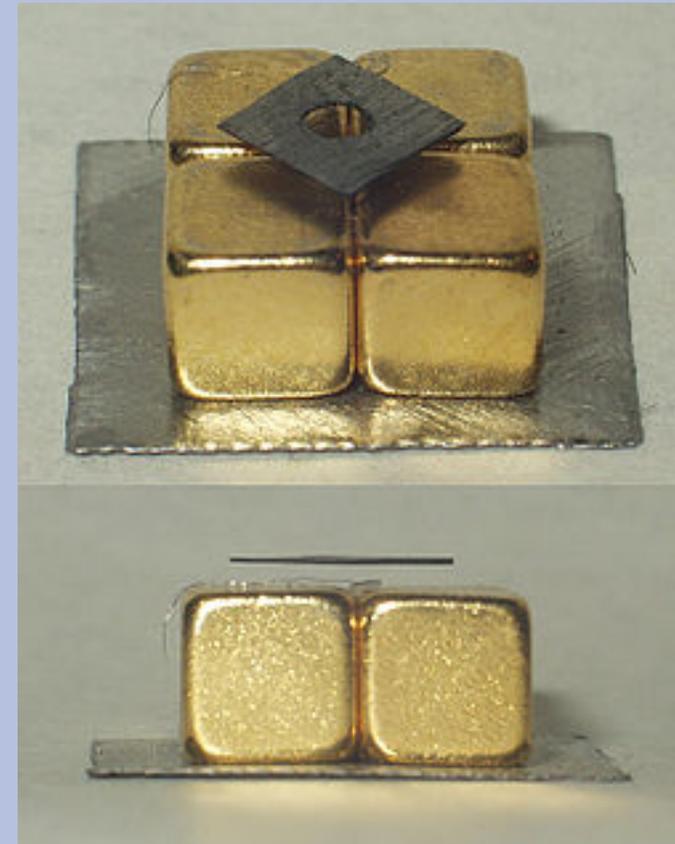
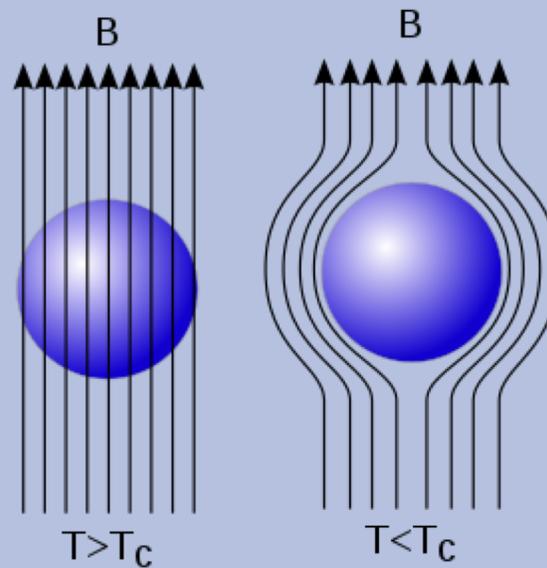


# SUPERCONDUTIVIDADE - PROPRIEDADES

- Resistência elétrica nula (Supercondutividade)
- Efeito Meissner (Superdiamagnetismo)

Supercondutor tipo II:

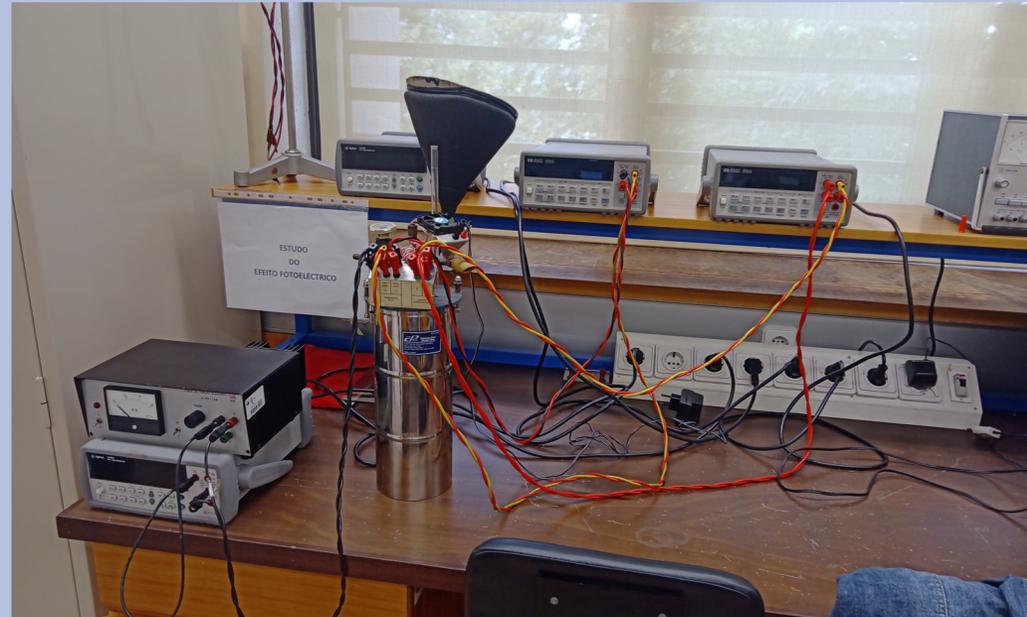
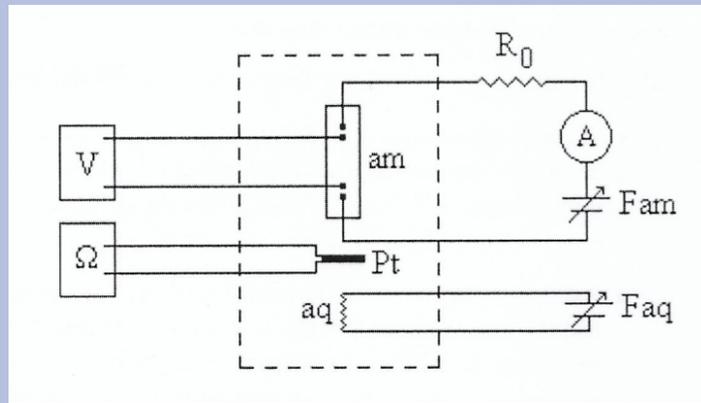
- Quantum Locking (Vórtices de Abrikosov)



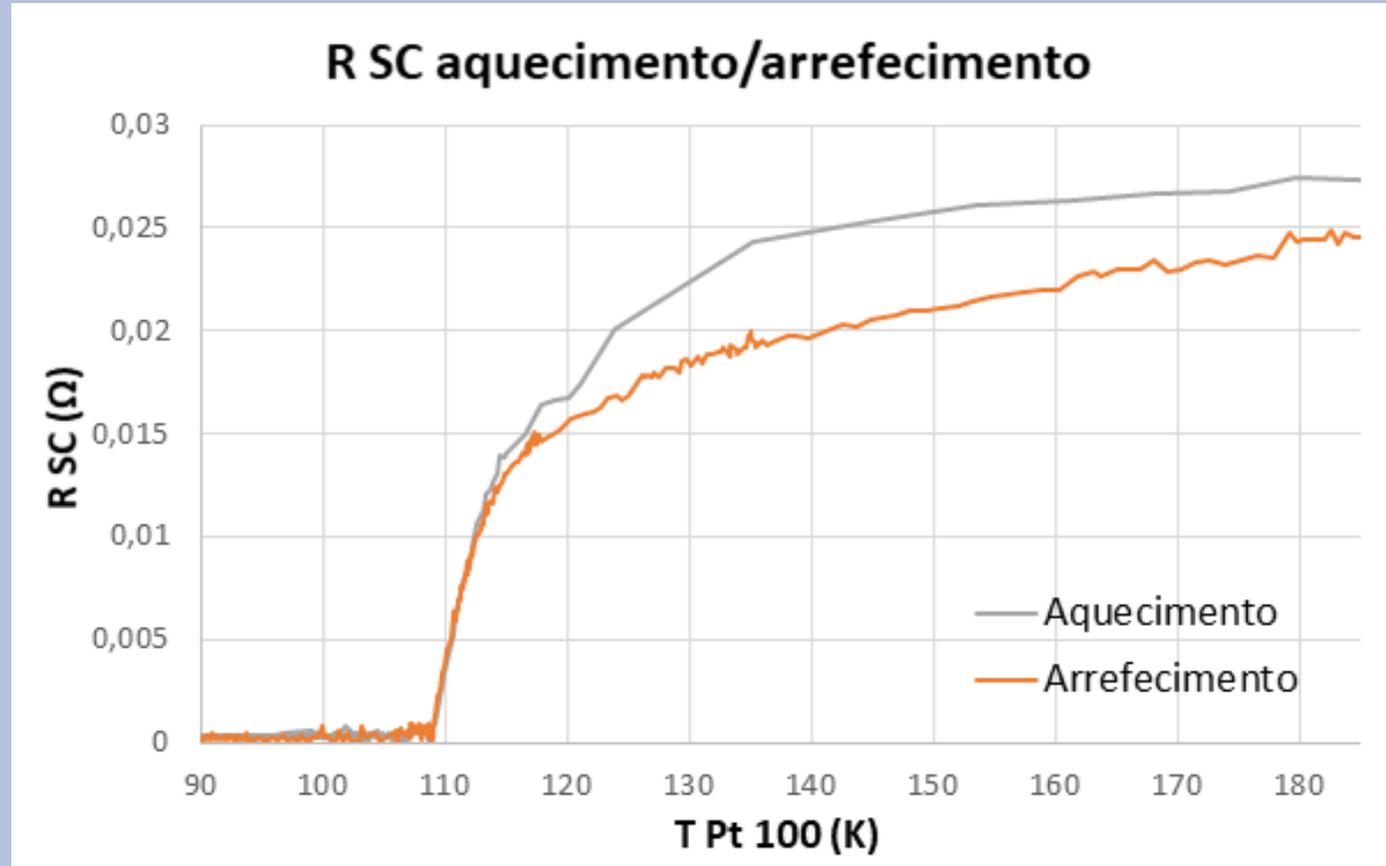
# PROCEDIMENTO EXPERIMENTAL

$$T(R) = -2,0 \times 10^{-13} R^6 + 2,2 \times 10^{-10} R^5 - 3,9 \times 10^{-8} R^4 - 4,0 \times 10^{-6} R^3 + 2,6 \times 10^{-3} R^2 + 2,2R - 2,4 \times 10^2$$

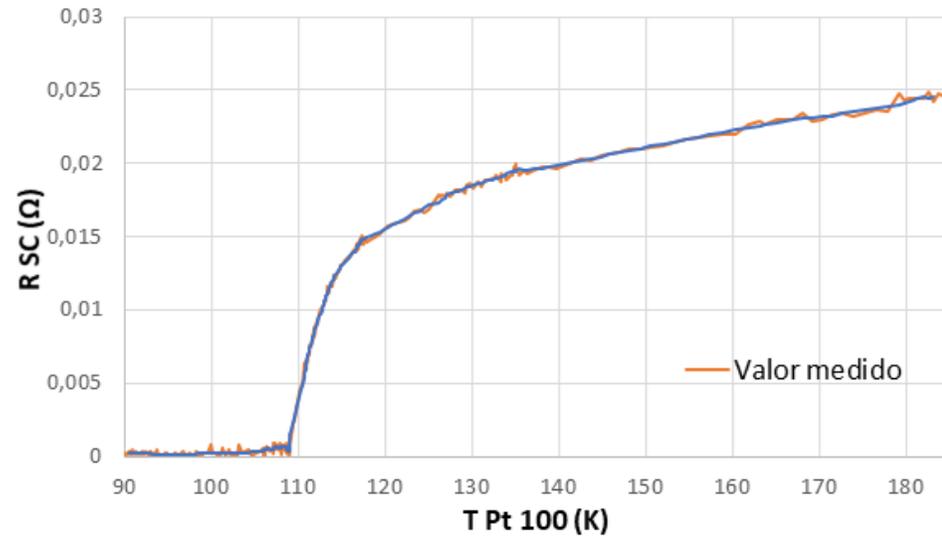
sendo: T a temperatura do sensor Pt 100 em °C e R a resistência do sensor Pt 100 em Ohm



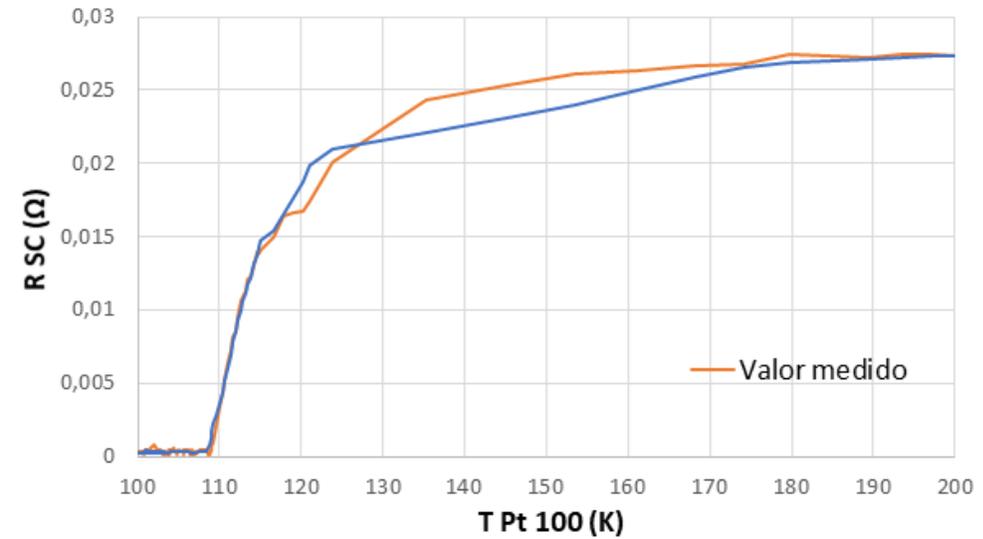
# RESULTADOS



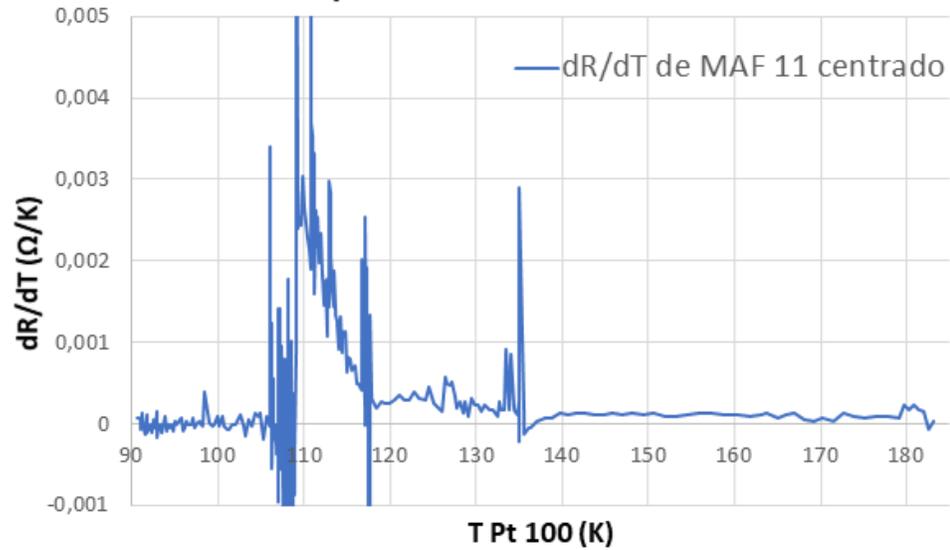
### R SC arrefecimento



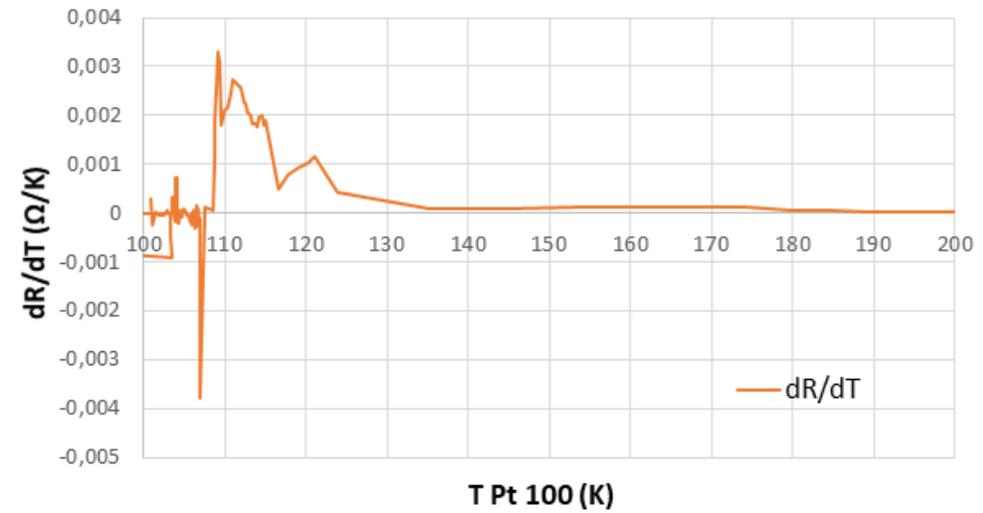
### R SC aquecimento



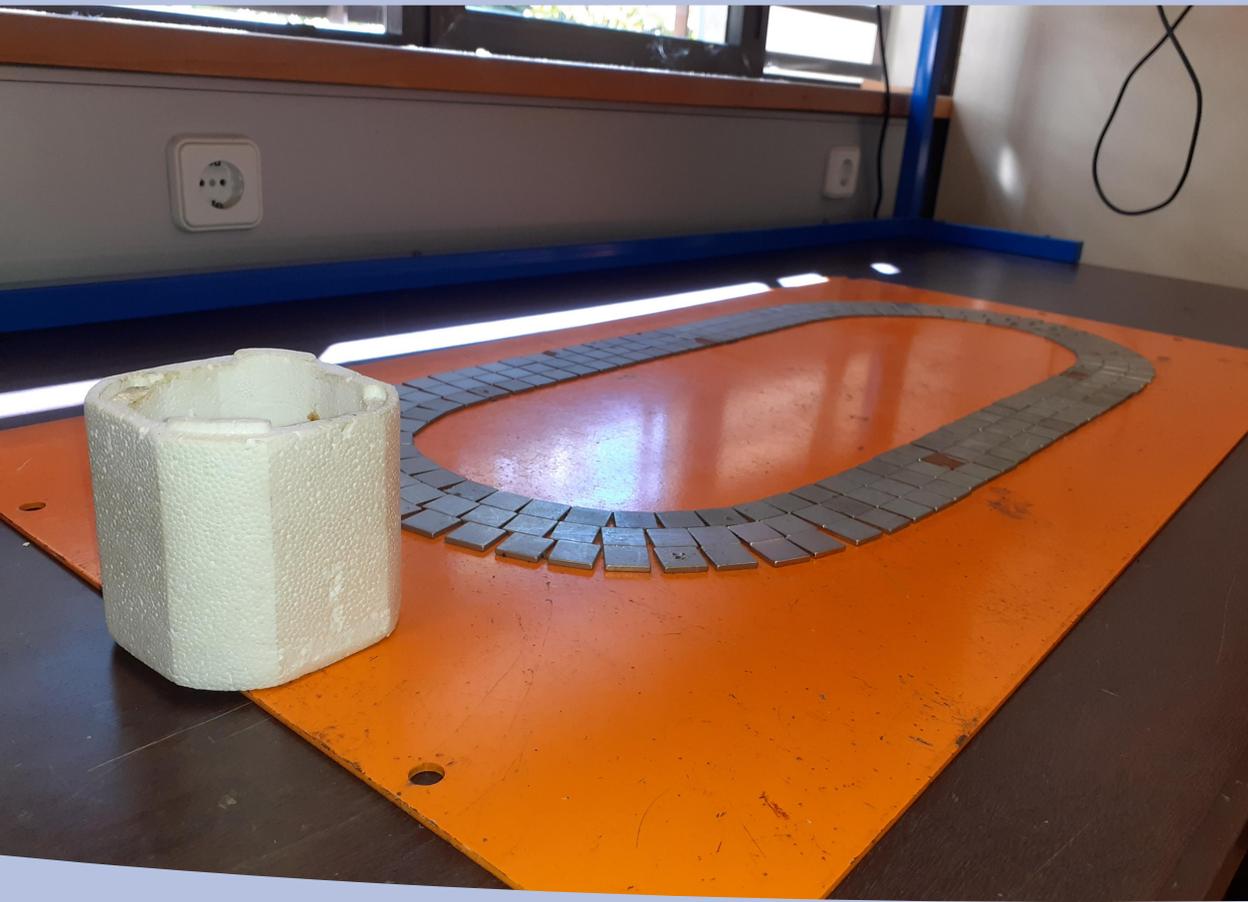
### dR/dT SC arrefecimento



### R SC aquecimento



# EXPERIÊNCIA DA LEVITAÇÃO DO SUPERCONDUTOR

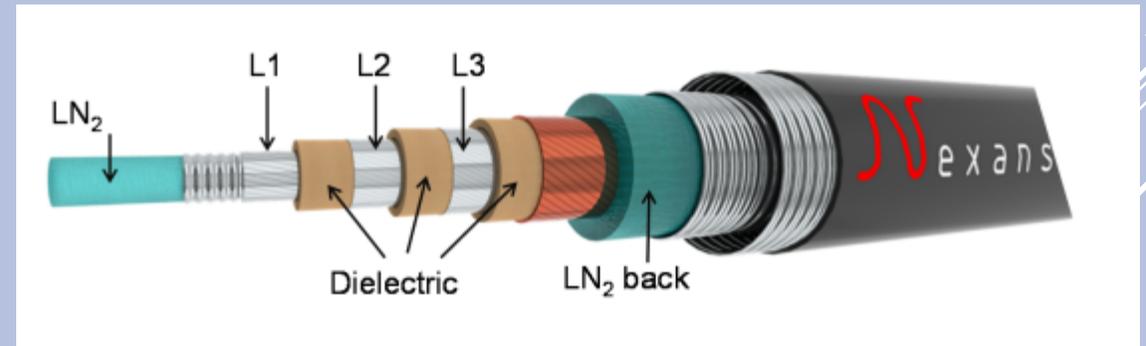


# RESULTADOS



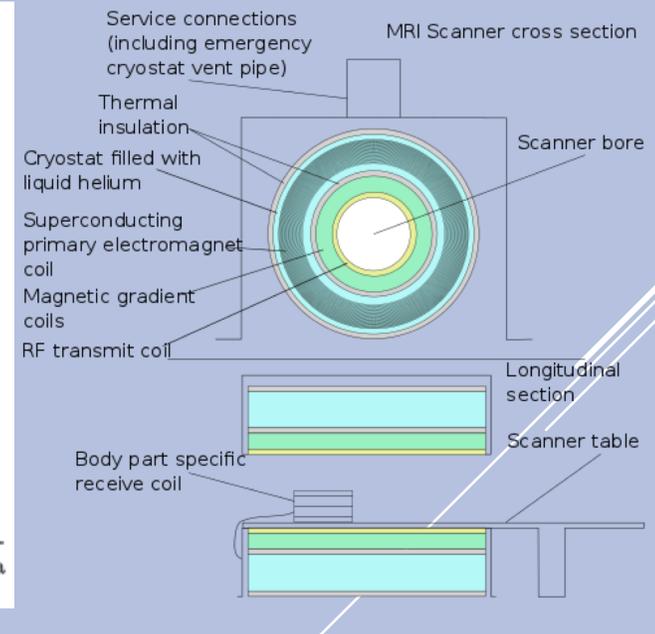
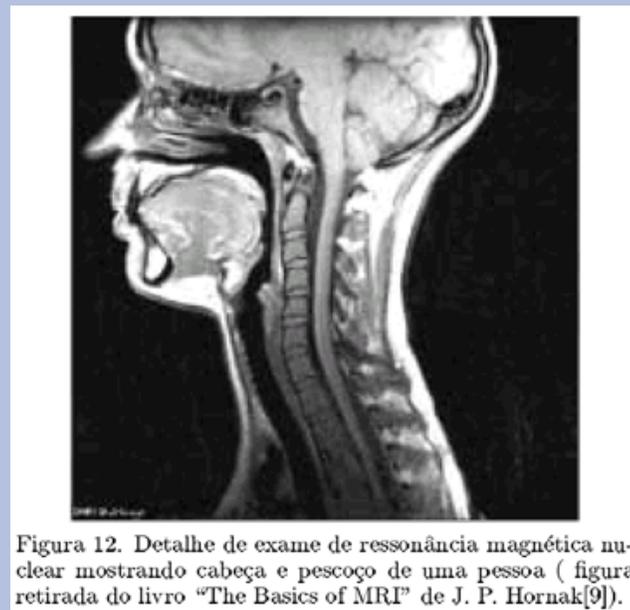
# APLICAÇÕES DOS SUPERCONDUTORES

- ▶ Transmissão de energia a longa distância sem perdas de energia (Nova Iorque - Holbrook Superconductor Project)



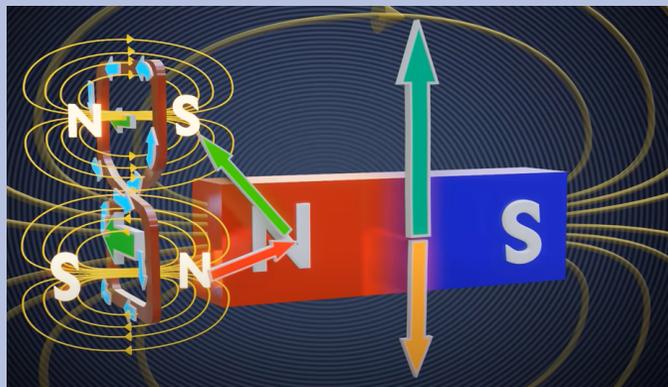
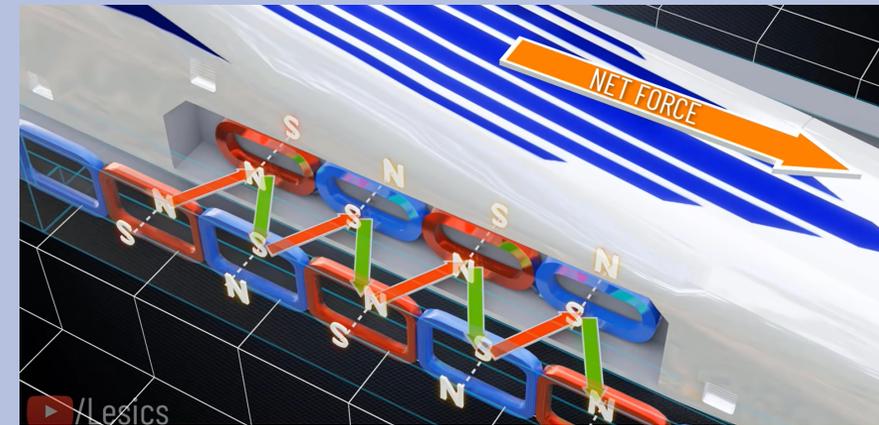
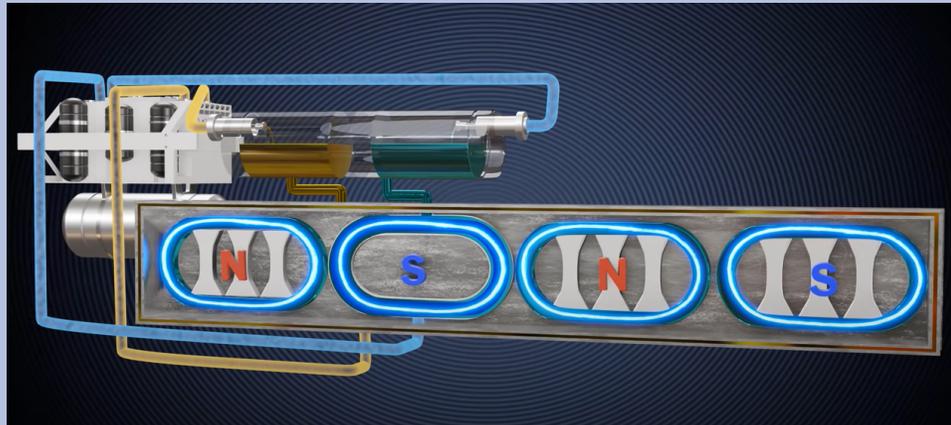
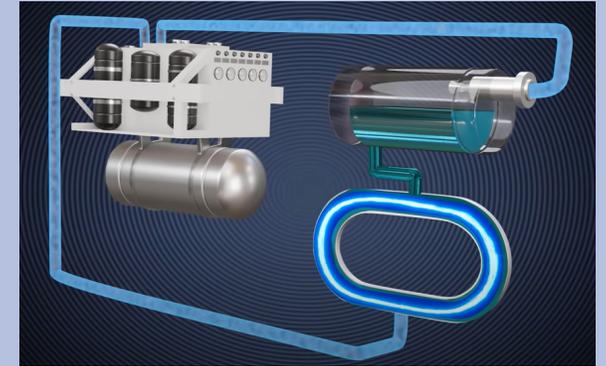
# APLICAÇÕES DOS SUPERCONDUTORES

## ► Ressonância magnética nuclear



# APLICAÇÕES DOS SUPERCONDUTORES

- ▶ MagLev (comboio de alta velocidade)



# FIM

