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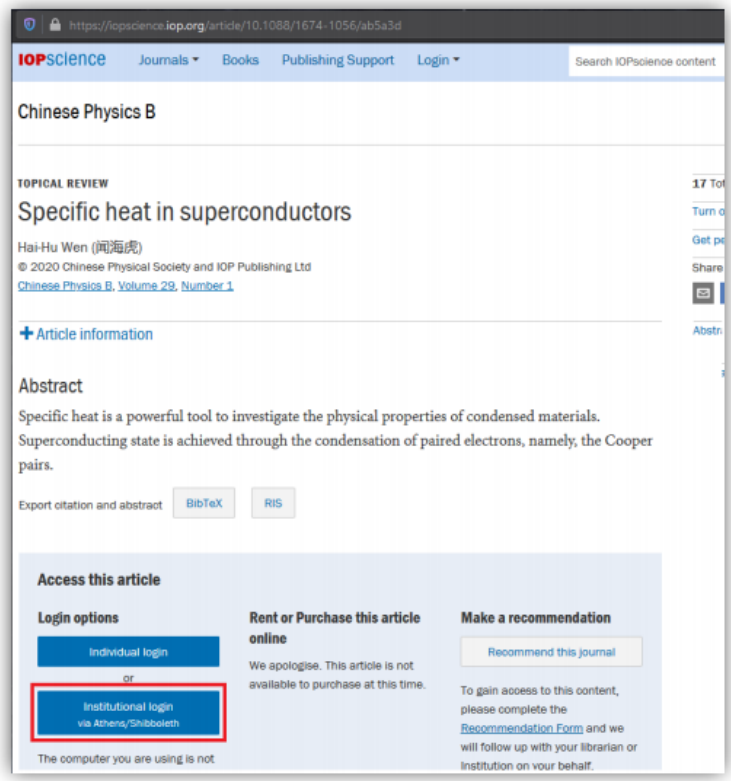

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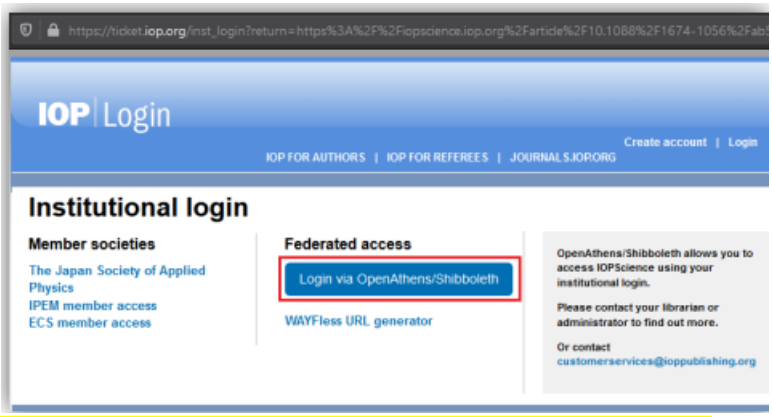

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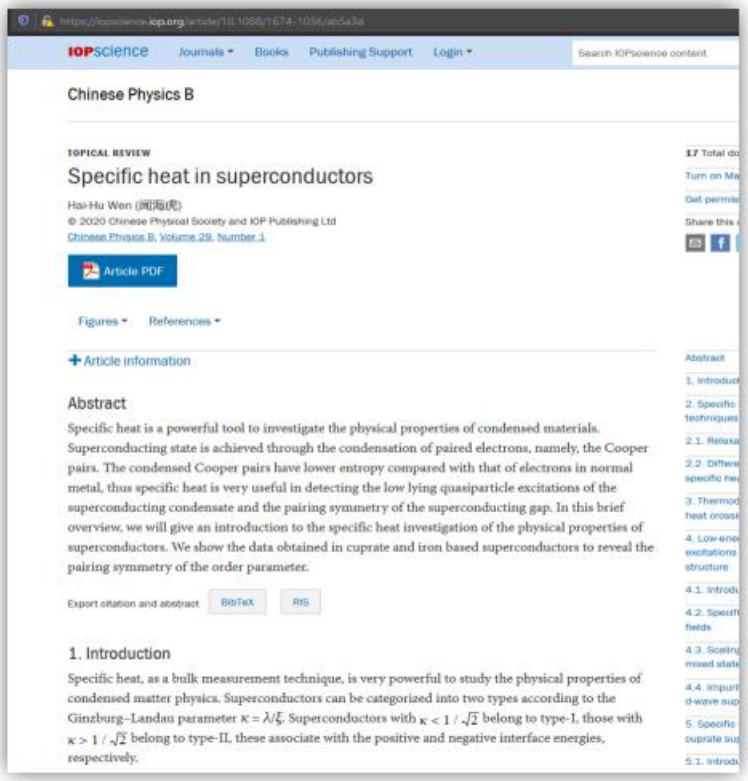

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Chinese Physics B

TOPICAL REVIEW

Specific heat in superconductors

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Article information

Abstract

Specific heat is a powerful tool to investigate the physical properties of condensed materials. Superconducting state is achieved through the condensation of paired electrons, namely, the Cooper pairs. The condensed Cooper pairs have lower entropy compared with that of electrons in normal metal, thus specific heat is very useful in detecting the low lying quasiparticle excitations of the superconducting condensate and the pairing symmetry of the superconducting gap. In this brief overview, we will give an introduction to the specific heat investigation of the physical properties of superconductors. We show the data obtained in cuprate and iron based superconductors to reveal the pairing symmetry of the order parameter.

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1. Introduction

Specific heat, as a bulk measurement technique, is very powerful to study the physical properties of condensed matter physics. Superconductors can be categorized into two types according to the Ginzburg–Landau parameter $\kappa = \lambda/\xi$. Superconductors with $\kappa < 1/\sqrt{2}$ belong to type-I, those with $\kappa > 1/\sqrt{2}$ belong to type-II, these associate with the positive and negative interface energies, respectively.