

**HIGH MAGNETIC POINT-CONTACT PROPERTIES OF
YbCu_{3.5-x}Al_x ($x = 1.3 - 1.75$) IN THE VICINITY OF QCP**

G. Pristáš^a, M. Reiffers^a, E. Bauer^b, A. G. M. Jansen^c, D. K. Maude^d

^aInstitute of Experimental Physics, Watsonova 47, SK-040 01 Košice, Slovakia

^bInstitut für Festkörperphysik, Technische Universität Wien, 1040 Wien, Austria

^cInstitut Nanosciences et Cryogénie CEA-Grenoble, 38054 Grenoble Cedex

^dGrenoble High Magnetic Field Laboratory (CNRS), BP 166, 38042 Grenoble, France

The non-Fermi liquid system YbCu_{5-x}Al_x ($x = 1.3 - 1.75$) has been investigated by point-contact spectroscopy (PCS). The observed $dV/dI(V)$ characteristics do not agree with the model of thermal contact heating, at least close to zero-bias voltage. In the case of a hetero-contact arrangement we have observed a maximum at only one voltage polarity at about 1.3 mV (for $x = 1.5$). We have observed asymmetric shape of $dV/dI(V)$ of current-voltage characteristics for hetero-contact arrangement. Application of magnetic field destroys NFL state in sample and restores normal FL state. In high magnetic fields the asymmetry is suppressed. We suppose, that the asymmetry has origin in the NFL state of the sample. Moreover, the observed maximum near zero-bias voltage is in contradiction to the thermal regime. We observed new kind of asymmetry. We suppose that in our heterocontacts some intermediate regime between diffusive and thermal is present.

This work was supported by Slovak grant agency VEGA 6195; by COST programme ECOM P16 and by European Commission (6th FP) "Transnational Access - Specific Support Action" contract No RITA-CT-2003-505474. We wish to acknowledge the support by Austrian FWF P18054.

13.4 cm

Subject category :

1. Strongly Correlated Electrons and High Temperature Superconductivity

Presentation mode :

poster

Corresponding author :

G. Pristáš

Address for correspondence :

Institute of Experimental Physics

Watsonova 47

SK-043 53 Košice

Slovakia

Email address :

reiffers@saske.sk

9.7 cm