A.C. SUSCEPTIBILITY MEASUREMENTS UNDER HIGH PRESSURE UP TO 2.4 GPa

B. Środniawa[a], R. Duraj[a], R. Zach[a] and M. Guillot[b]

[a]Institute of Physics, Technical University of Cracow, 1 Podchorążych, Cracow, Poland

[b]LMCI, Max Planck Institute, BP 166X, Av. Martyrs Grenoble, France

9.7 cm

In this report we present briefly a new developed pressure set-up for a.c. susceptibility measurements in the pressure range up to 2.4 GPa. The main components of the apparatus are: i) an external magnetic coil provided with an a.c. current power supply;
ii) a set of three pick up coils (wound in the series opposition) previously compensated. The sample is placed in the center of the inner coil. The whole system is placed inside a steel pressure chamber (UNIPRESS, Warsaw). As a liquid pressure transmitting medium either alcohol or extraction benzin is used. The pressure is measured by means of manganin pick up coil placed inside the pressure chamber. The influence of temperature on the resistance of the pressure sensor is taken into account to determine the exact pressure value. The voltage induced in a pick up coil is measured by selective nanovoltmeter. The detected signal, registered on-line by PC computer, is proportional to a.c. susceptibility. Changes of temperature are provided by a heater outside the chamber and are measured by means of Cu-constantan thermocouple placed in a direct contact with the sample. Preliminary a.c. susceptibility measurements of the background of the pressure chamber were carried out and no influence on magnetic signal of the pressure chamber was detected. Preliminary (P,T) magnetic phase diagrams of $(\mathrm{Fe_{1-x}Ni_x})_2\mathrm{P}$ system in the pressure range up to 2.0 GPa, obtained using the above described pressure set-up, will be presented.

13.4 cm

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Corresponding author :
R. Zach

Address for correspondence :
Institute of Physics, Technical University of Cracow, 1^{st} Podchorążych, 30084 Cracow, Poland

Email address :
puzach@cyf-kr.edu.pl