



Université  
de Toulouse



## **POST-DOC POSITION**

### **Electronic properties of graphene and few layer graphene under high magnetic field**

Applications are invited for a postdoctoral position at the National Laboratory of Pulsed Magnetic Field (LNCMP) in Toulouse, France, to lead research efforts in the investigation of electronic properties of graphene and few layer graphene (FLG) under very high magnetic field.

Dimensionality is a crucial parameter which strongly affects the electronic properties of physical systems. Together with carbon nanotubes, an important milestone has been reached a few years ago when a very few individual layers of graphite (down to a monolayer - i.e. a single plane of carbon atoms coined graphene) has been isolated and studied. The exceptional band structures and subsequent electronic properties of such ultimate 2D systems differ drastically from those of its 3D (graphite) and 1D (nanotube) counterparts, leading to a growing interest among the scientific community in the field of “carbon-based electronics”.

Experimentally, the generation of a strong magnetic field is a powerful tool to address the very peculiar electronic properties of graphene and FLG. In this context, the LNCMP is specialized in generating pulsed magnetic fields up to 60T which allows the investigation of charge carriers dynamic in their lowest Landau level. In this regime, anomalous Quantum Hall Effect related to the presence of Dirac fermions and Coulomb interactions significantly disturb the usual electronic behaviour of conventional two-dimensional systems.

The successful candidate will conduct low temperature (1.5K and 300mK) magneto-transport and magneto-optical measurements under high magnetic fields in FLG and graphene. He will also be in charge of the whole sample fabrication process, including extraction of graphene/FLG by micromechanical cleavage and nano-contacting by electron lithography. Knowledge and experience in standard clean room methods or low temperature physics (transport and/or optical measurements) or high magnetic field physics will be appreciated. The position is for one year with possibility of another one year renewal. This project is funded through ANR grant “MAGBiSY” involving LNCMP, GHMFL, CEA-Grenoble and CEMES.

Qualified candidates are requested to send a Curriculum Vitae with complete list of publications, names and contact information of at least two references and a brief summary of previous/current research and future research interests. Applications may be submitted by e-mail to Prof. Michel Goiran or Dr. Walter Escoffier or by regular mail to LNCMP, 143 Avenue de Rangueil, 31400 Toulouse, France. **Priority will be given to complete applications received by November 15, 2008.**

For more information about the laboratory, candidates can refer to the web site: [www.lncmp.org](http://www.lncmp.org)

#### **Contacts :**

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