Position Open for Research Computing Support Unit

The Center for Advanced 2D Materials, formerly Graphene Research Centre, has an open HPC position for its Research Computing Support Unit.

About the Center

Established in 2010 within the National University of Singapore, the Graphene Research Centre (GRC) was created for the conception, characterization, theoretical modeling, and development of transformative technologies based on two-dimensional crystals, such as graphene.

In 2014, the National Research Foundation (NRF) of Singapore has awarded NUS with a S$ 50 M grant over the next 10 years in order to support the operational costs of GRC's labs and micro and nano-fabrication facility and the exploration, synthesis, and development of new devices based on two-dimensional (2D) materials of which graphene is the most famous, creating a new Centre for Advanced 2D Materials which will be directed by Prof. Antonio H. Castro Neto.

Aiming at being a world leader in innovative and emergent materials science, with strong ties to the industry and academia, the CA2DM and GRC will directly contribute to a new generation of scientists and engineers who will have a permanent impact in the society and business enterprise landscape of Singapore, and worldwide.

About the Research Computing Support Unit

This unit provides support to the researchers that use computational resources for their work. This includes, besides traditional IT infrastructures, specific computational resources such as high end workstations and computing clusters, both internal to the center and available at University, National and Regional level.

The Centre for Advanced 2D Materials and Graphene Research Centre has its own dedicated High Performance Computing cluster dimensioned and configured taking into account the specific needs of our researchers and research targets. The current hardware specifications for our HPC cluster are 1500 Xeon E5 cores, 15 TB of RAM, 8 TB global scratch space, 20 TB distributed local scratch space, 24 TB parallel file system storage space, 100 TB long term storage space, three 48port 10G ethernet switches, four 36port FDR infiniband Switches, and it is expected to at least double in size and performance every two years.
Systems Specialist (HPC)

**Job Purpose:** To provide research computing support. This individual will be responsible for setting up, managing and optimizing research computing resources.

**Duties & Responsibilities:**
- Procure, commission, administer, optimize and monitor of high performance computing workstations and clusters;
- Deploy and optimize computational material science software (Quantum Espresso, Vasp, Siesta, etc.);
- Develop computational material science data management and analysis software;
- Report on computing resources usage;
- Debug, Profile and Optimize C/C++ and Fortran scientific code;
- Find implementation or algorithm alternatives to computational bottlenecks;
- Evaluate computational alternatives such as different processor architectures, accelerators, networking, etc.;
- Provide training and documentation to staff and users

**Requirements:**
- Degree in Scientific or IT related discipline;
- Experience in managing Linux (RedHat based) systems;
- Experience with automated provisioning systems (xcat, perceus) and configuration management systems (puppet, cfengine, chef);
- Programming skills: numeric (C/C++ and Fortran) and scripting (python, octave, R);
- Parallel programming (MPI, OpenMP, Cuda) experience;
- Knowledge of numerical libraries (BLAS, LAPACK, FFTW, MKL);
- Knowledge of visualization tools and libraries (vtk, matplotlib, etc.);
- Ethernet and Infiniband networking knowledge;
- Experience with mathematical platforms (Matlab, Maple, Mathematica);
- Algorithmic oriented problem solving experience;
- Capacity to understand and address research staff concerns;
- Good team player with ability to work independently;
- Good communication skills, ability to communicate effectively with technical and non-technical persons;
- Good analytical and problem solving skills.
About NUS

A leading global university centred in Asia, the National University of Singapore (NUS) is Singapore's flagship university which offers a global approach to education and research with a focus on Asian perspectives and expertise.

Its 16 faculties and schools across three campus locations in Singapore – Kent Ridge, Bukit Timah and Outram – provides a broad-based curriculum underscored by multi-disciplinary courses and cross-faculty enrichment. NUS' transformative education includes programmes such as student exchange, entrepreneurial internships at NUS Overseas Colleges, and double degree and joint degree programmes with some of the world's top universities, offering students opportunities and challenges to realise their potential. The learning experience is complemented by a vibrant residential life with avenues for artistic, cultural and sporting pursuits. Over 37,000 students from 100 countries further enrich the community with their diverse social and cultural perspectives.

NUS has three Research Centres of Excellence (RCE) and 24 university-level research institutes and centres. It is also a partner for Singapore's 5th RCE. The University shares a close affiliation with 16 national-level research institutes and centres. Research activities are strategic and robust, and NUS is well-known for its research strengths in engineering, life sciences and biomedicine, social sciences and natural sciences. Major research thrusts have been made recently in several fields such as quantum technology; cancer and translational medicine; interactive and digital media; and the environment and water. The University also strives to create a supportive and innovative environment to promote creative enterprise within its community.

NUS is actively involved in international academic and research networks such as the Association of Pacific Rim Universities (APRU) and International Alliance of Research Universities (IARU).

Working at NUS

- You will enjoy the prestige and pride of working alongside bright, diverse and dedicated people who constantly strive to push boundaries in education, research and service. Being part of NUS is more than just a career – it could be a life-changing experience.

- Our spirit of enterprise and a "no-walls" culture means that everyone has the opportunity to develop and see through their ideas. No matter what you do, it is an amazing place to be.

- We offer market-competitive rewards package that consider your needs at different life stages. What's more, you can enjoy other perks including interesting recreational facilities, wellness programmes, concerts/performances and passes to local attractions, heavily-subsidized NUS graduate programmes, and a whole range of corporate discounts with participating merchants.

- We provide a supportive environment that allows you to enjoy a healthy work-life balance.