

Lab Internship for Overseas Students in Shenzhen Technology University

Internship in Lab of Super-Diamond Applied Technology

(Reference Number: Intern/c/201809/02)

Lab Introduction

We are the research group in Lab of Super-Diamond Applied Technology, College of New Materials and New Energies, Shenzhen Technology University, Shenzhen, China. Our lab aims at developing the technologies for synthesis of diamond by chemical vapor deposition (CVD) and its applications in jewelry, electronic devices and cutting tools. By controlling the parameters of CVD processes, we can get micro-crystalline, nano-crystalline or single crystal diamond. The HFCVD and MPCVD systems are established in this lab to prepare diamond and train the students of the CVD processes. We are looking for candidates who can help us perform the experiments for optimizing the CVD processes and relevant characterizations of obtained materials.

Your Tasks

1. To understand the two allotropes of carbon: diamond and graphite which have the same element that differ in structure. Furthermore, you should know the extreme properties of diamond and its important applications.
2. To study the formation of natural diamond and the history of man-made diamond. To understand the technologies of man-made diamond including high-pressure high-temperature (HPHT) method and CVD process.
3. The intern will be required to be familiar with the CVD processes for growing diamond thin films. It is important to learn to control the structure of diamond thin films by tuning and optimizing the CVD process such as the plasma power supplied, gas composition, substrate bias, and substrate temperature.
4. The characterizations and evaluation of diamond thin films. Raman spectroscopy, X-ray diffraction (XRD), scanning electron microscopy (SEM) and atomic force microscopy (AFM) will be performed.
5. A report of the experimental procedure and the analysis of prepared diamond thin films is required at the end of internship.
6. To prepare teaching/examine documents for the education of students.

Requirements

1. Basic courses about materials science and engineering-essential
2. A good level of written English is required-essential
3. Basic knowledge about thin film technology and related characterizations-desirable

Benefits

1. Feel at home. We provide you with a laptop, comfortable working space, free drinks and more.
2. Fun at work and beyond. Join our regular team events.

Supervisor

Dr. HE Bin

Associate Professor of College of New Materials and New Energies

Dr. He received his bachelor degree in Material Engineering in 1998 and earned his PhD in Material Physics and Chemistry from Beijing University of Technology in 2008. From Feb. 2006 to Sep. 2016, he worked in City University of Hong Kong (CityU) as a Research Fellow. Then, in Oct. 2016, he joined Southern University of Science and Technology (SUSTech) as a Research Associate Professor. He is now an Associate Professor in Shenzhen Technology University (SZTU) from Feb. 2018.

His research work focused on thin film technology, diamond and related materials, ultra-wide bandgap semiconductor thin films, surface and interface analysis, nanostructures and related applications. He has been the PI or Co-I in 16 projects from the Mainland China and Hong Kong SAR. He has published more than 30 papers and 2 book chapters, and holds 1 China patent. He was awarded the Shenzhen Peacock Plan Talents in 2017.



Please send a full curriculum vitae and passport copy together with copies of qualification documents by

email to international_internship@sztu.edu.cn with the email subject as "Reference Number – Job title – Full name of applicant".

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