

Research, Informatics and Graduate Studies

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PhD/Master (MSc) in Modern Diffraction Methods for Thermo Mechanical Processes -group of Prof. Klaus Liss (GS-2018002)

We have up to two Masters/PhD positions available in the area Modern Diffraction Methods for the Investigation of Thermo-Mechanical Processes (ThermoMech.Pro), employing synchrotron radiation and neutron scattering. The Materials Science and Engineering Program, within the group of Prof Klaus-Dieter Liss, is looking for enthusiastic, motivated and competent scientists to conduct experimental research projects in the advance of understanding the physics metallic and related materials upon thermal, mechanical and thermo-mechanical processing, investigated by modern techniques of synchrotron and neutron radiation, and complementary studies. You will work in a global large-infrastructure environment and obtain your degree at the Technion (Israel).

Project Details

Quantum beam sources, comprising synchrotron and neutron radiation have tremendously evolved in their capabilities to study materials in a wide sense and will be applied to the understanding of the thermal and deformation behavior of metals and related materials, especially under in-situ conditions. The applications range from the fundamental understanding of physics of their structural evolution to applications in materials and processing design. Items of fundamental interest are the occurrence, kinetics, correlations and mechanism of structural transformations such as phase transformations, deformation systems, grain growth and refinement, recrystallization, recovery, all static and dynamic. Applications settle in the design and life span of intermetallics, steels, light metals in ideal form and composites. Excellence will be established in advanced and novel data analysis and extraction of results. We work in a collaborative international environment.

Keywords

Synchrotron radiation; neutron scattering; materials physics; metallurgy; plastic deformation; slip; twinning; martensitic transformation; phase transformation; recovery; recrystallization; dislocations; crystal perfection; light metals; steels; intermetallics; extreme conditions; advanced diffraction techniques; in-situ studies; real-time studies; advanced data analysis; computing and automation; scattering theories; diffraction theories; neutron scattering; synchrotron radiation.

Selection Criteria

- Fulfil Technion conditions for graduate studies (essential)
- Strong background in condensed matter physics (preferable)
- Strong interest in materials science theories (essential)
- Strong computing skills, including programming, scripting (essential) linux (preferable)
- Strong interest to work temporarily at large-scale research facilities in China, Europe, United States, Japan or Australia (essential)
- Strong interest in exact work and artistic presentation (essential)

Program

Materials Science and Engineering

Research Area

Modern Diffraction Methods for Thermo Mechanical Processes

Contact

Prof Klaus-Dieter Liss

Phone: +86-0754-88077102

Email: kdl@gtiit.edu.cn

Application Deadline

Open till filled

Date Posted

1 Feb. 2018

Location

Guangdong Technion - Israel Institute of Technology (GTIIT), China & Technion-Israel Institute of Technology, Haifa

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- Good command of English (essential)
- Ability to work both independently and in a team environment (essential)
- Ability to author scientific reports and co-author scientific publications (essential)
- Willingness to participate in other research projects (essential)
- The candidate must fulfill the requirements for admission to the Technion Graduate School and needs to comply with its regulations leading to the PhD/MSc degree: <https://graduate.technion.ac.il/en/prospective-students/>