The Norwegian University of Science and Technology (NTNU) in Trondheim represents academic eminence in technology and the natural sciences as well as in other academic disciplines ranging from the social sciences, the arts, medicine, teacher education, architecture to fine art. Cross-disciplinary cooperation results in innovative breakthroughs and creative solutions with far-reaching social and economic impact.

Faculty of Natural Sciences and Technology – Department of Chemistry, Faculty of Information Technology, Mathematics and Electrical Engineering – Department of Electronics and Telecommunications

The Department of Chemistry at the Faculty of Natural Sciences and Technology and the Department of Electronics and Telecommunications at the Faculty of Information Technology, mathematics and Electrical Engineering of the Norwegian University of Science and Technology (NTNU) invite applications for respectively a postdoctoral position and a PhD position.

These two positions are part of a major research project aiming to study the non equilibrium response, i.e., thermo-molecular orientation of polar fluids under strong thermal gradients. The project involves state of the art computer simulations and laser spectroscopy techniques, with methodological developments in these areas as well as application of these techniques to understand the non equilibrium behaviour of fluids away from equilibrium.

Postdoctoral position in theoretical research on polar fluids (NT-20/13)

Applications are invited for a 3-year postdoctoral position at the Department of Chemistry. This is to carry out computational and theoretical research on polar fluids (e.g. water) subjected to strong thermal gradients, with the aim to investigate the thermal orientation response of the molecular fluids as well as the thermally induced electric fields. The successful candidate will interact with a multidisciplinary team of computational physicists/chemists, theoreticians and experimentalists at NTNU and Imperial College. The project involves a very strong interaction with Imperial College and also periodic stays at this institution.

The project will involve the development of computational techniques to model quantum nuclear and electronic degrees of freedom in molecular fluids. These computational approaches will be employed to investigate the non-equilibrium response of the fluid when it is subjected to very intense laser pulses as well as to strong thermal gradients generated at small scales using suitable micro and nanoscale devices. The computational studies will be performed in parallel with tailored experiments, performed the experimental members of the Team.

A PhD in Physical Sciences or Engineering and experience in a closely related area is essential. The candidate should have a strong background on the development and use of computer simulation approaches. Particular emphasis will be given to candidates with experience on, equilibrium and non-equilibrium approaches, as well as strong experience on ab initio quantum simulations. Previous experience on non-equilibrium thermodynamics/statistical physics would be an advantage. Excellent knowledge of FORTRAN and C++, Unix, numerical analysis and a proven publication track record are essential.

More information about this position can be obtained by contacting professor II Fernando Bresme, email: Fernando.Bresme@ntnu.no

The position is organized at the Department of Chemistry. The Department covers Applied Theoretical Chemistry, Organic Chemistry, Environmental- and Analytical Chemistry and Chemistry Dissemination, and has at present 12 full professors, 3 part time professors, 10 associate professors and 25 PhD students.

Further information about the Department is available at: http://www.ntnu.edu/chemistry

The start salary for a postdoctoral position is set at level 57, annual NOK 468 100 (before tax) in the Norwegian state salary scale. 2% of the salary will be deducted at source as a mandatory premium to the Norwegian State Pension Fund.

The appointment of the Post Doctor will be made according to Norwegian guidelines for universities and university colleges and to the general regulations regarding university employees.
The position adheres to the Norwegian Government’s policy of equal opportunity regardless of ethnicity, age and gender.

**PhD position in experimental work on polar fluids (NT- 21/13)**

1 PhD position is available at the Department of Electronics and Communications for a period of four years including 25 % teaching duties. The position involves experimental work in the field of femtosecond and THz spectroscopy of polar fluids. The project is aimed at understanding thermally induced electric fields in polar fluids that have been discovered very recently and that are expected to be relevant in determining biological processes and in general non-equilibrium processes at the nanoscale where thermal dissipation is important. Emphasis is on dynamic spectroscopy using femtosecond pulses together with pump-probe techniques. The project involves close collaboration with theorists and the applicant needs a thorough background in electromagnetism, quantum mechanics and physical chemistry.

The PhD-position will be awarded on a competitive basis. The successful candidate is a highly motivated and ambitious student with excellent grades (minimum grade average B on MSc). The successful candidate will hold a university degree (Master of Science or equivalent) in physics or chemistry. More information about this position can be obtained by contacting professor Ulf Østerberg, email: ulf.osterberg@iet.ntnu.no

The position is organized at the Department of Electronics and Communications. The Department’s research covers wireless technology in communication, navigation, radar and remote sensing, and has at present 22 full professors, 8 part time professors, 8 associate professors and 88 PhD students.

Further information about the Department is available at: [http://www.iet.ntnu.no/en](http://www.iet.ntnu.no/en)
Detailed information on the Faculty of Information Technology, mathematics and Electrical Engineering’s PhD programmes is found at: [http://www.ntnu.edu/ime/studies](http://www.ntnu.edu/ime/studies)

NTNU’s PhD-rules require a master degree or equivalent with at least 5 years of studies and an average grade of A or B within a scale of A-E for passing grades (A best) and B or higher of the BSc. Candidates from universities outside Norway are kindly requested to send a diploma supplement or a similar document, which describes in detail the study and grade system: [http://ec.europa.eu/education/policies/rec_qual/recognitio/diploma_en.html](http://ec.europa.eu/education/policies/rec_qual/recognitio/diploma_en.html)

The appointment of the PhD will be made according to Norwegian guidelines for universities and university colleges and to the general regulations regarding university employees. Applicants must agree to participate in organized doctoral study programs within the period of the appointment and have to be qualified for the PhD-study.

The start salary for the PhD research fellow is set at level 50 annual NOK 416 300 (before tax) in the Norwegian state salary scale. 2% of the salary will be deducted at source as a mandatory premium to the Norwegian State Pension Fund.

The position adheres to the Norwegian Government’s policy of equal opportunity regardless of ethnicity, age and gender.

All applicants for both positions, postdoctoral and PhD positions must be able to communicate fluently in English, both spoken and written.

The application letter should include information on the candidate’s prior training, work experience and motivations to this research topic. Within the application deadline, applicants must submit the application, a CV, certified copies of certificates of education and other relevant documents.

Applications with required documents should be submitted electronically through [www.jobbnorge.no](http://www.jobbnorge.no)

Deadline: 17.03.2013.