

# Atomic Force Microscopy (AFM) Specialist/Developer

## INTRODUCTION

Nearfield Instruments (NFI) brings together the most creative minds in science and technology to develop a revolutionary high throughput atomic force microscopy system enabling atom-scale resolution 3D metrology at industry-level throughput, based on three pillars:

- Unrivaled measurement speed;
- Parallelization capability;
- Advanced measurement modes.

At NFI, we design, develop, integrate, market and service these advanced metrology machines, which enable our customers - the world's leading chipmakers – to increase the production yields, and thus, functionality of their microchips, which in turn leads to smaller, more powerful consumer electronics. We aim to develop leading edge metrology systems, to be installed at the customer site, within specifications, on time, with quality exceeding the customer's expectations.

## WHAT WILL YOU BE DOING?

As an AFM developer/specialist you will be involved in development of AFM technologies and hardware for applications in semiconductor metrology. By theoretical analysis and simulations, design and building working prototypes, you show how the technical challenges of our customers can be solved.

You will also be involved in the research and development (R&D) of the next generation AFM systems for metrology applications. Together with your colleagues you will analyze and predict customer needs, translate these to system requirements, create conceptual designs and build experimental setups to demonstrate key aspects, and realize and experimentally characterize full instrument prototypes. For this you will apply your experience and knowledge about the physics of tip-sample interaction, dynamics of the AFM cantilever, optical beam deflection, closed loop control of AFM, various scanning modes (Tapping mode (AM mode) frequency modulation (FM mode), force-distance measurement, electrical measurement, nanomechanical measurements). You are also able to translate the customer needs in metrology to recipes for AFM measurement.

You will be trusted to recommend design changes or substitution of materials when appropriate. You will also advise users of appropriate actions to correct malfunctions and may recommend changes in user procedures.

Moreover, you will be in close/regular contact with the customer. You'll answer questions and assist them in a professional manner. In order to excel at this, you need to be customer-oriented and have excellent problem analysis skills. Your power of persuasion is strong, you demonstrate good communication skills and you possess natural leadership qualities.

In this role you will travel for about 10 percent of your time. You will report directly to the CTO.

## WHAT DO WE REQUIRE OF YOU?

The AFM specialist/developer we seek ideally has at least 5 years of experience as an AFM expert in a working environment which, in terms of complexity, is in line with that of NFI. Experience in the field of semiconductor equipment is required. Furthermore, you need to recognize yourself in the profile as described below.

### You have:

- A Masters in Mechanical Engineering, Mechatronics, Physics or Electrical Engineering with an emphasis on mechatronic systems (preferred) / mechanics / kinematics / dynamics /opto-mechanics is required or equivalent experience;
- A second degree in Physics, Mathematics, or other relevant disciplines is preferred;
- Experience in analyzing applicability, accuracy and adherence to design specifications;
- Generated models or simulations to analyze expected AFM performance, and have lead a multi-disciplinary team to an optimal solution;
- An understanding of the semiconductor industry and the challenges this industry faces in the area of nano-metrology and nano-manufacturing;
- Knowledge of how to build a nanoscale instruments such as an AFM or SPM and the physics behind the working of such instruments;
- Prepared written technical reports on an independent basis;
- Experience in measurement analysis;
- Experience working in a multi-disciplinary engineering environment, with suppliers and co-developers, to ensure timely realization of competitive, high precision, complex components and assemblies;
- Experience in the design and realization of test setups, and in the design and execution of complex experiments;
- Experience in the following areas is required: sub-nanometer AFM metrology / tuning for closed loop control of AFM, MATLAB / Simulink;
- Be a demonstrated “team player” with strong interpersonal skills and a quality orientation;
- Be able to quickly acquire technical knowledge from documentation and on-the-job training, and be capable of thoroughly investigating technical issues (analytically and hands-on in a lab environment);
- Be willing to own the module performance, and support the entire product life-cycle (development through sustaining engineering);
- Strong written and oral communication skills and a commitment to achieving results on time;
- You have a good command of the English language, both written and spoken.

## HAS THIS VACANCY AROUSED YOUR INTEREST?

Then please feel free to apply on this vacancy! Nearfield Instruments offers an exciting, fast-paced working environment where you will be able to shape the system and the company.

For further questions don't hesitate to contact us.

### Please send your application to:

Mrs. Sharita Nandpersad

Email address: [sharita.nandpersad@nearfieldinstruments.com](mailto:sharita.nandpersad@nearfieldinstruments.com)