

For holistic research

The University of Limerick has received one of Europe's most powerful microscopes supported by NT-MDT, a world-leading manufacturer of atomic force based microscopes (AFM). Only a few manufacturers in the world have the capability of providing an integrated AFM of this kind with such versatile capabilities says Denis Stoiakine, CEO NT-MDT Ireland. "We are the global leader in AFM and offer a huge range of devices in this field, for different applications. We're particularly good at developing new devices, of which the NTEGRA Spectra, recently installed for the University of Limerick, is a prime example."

Founded in 1990, NT-MDT has become known internationally for its next-generation nanotechnological tools and accessories for scientific and research organisations. It is a world leader in atomic force microscopy (AFM), which was developed in the 1980s when people tried to extend the Nobel-prize winning scanning tunnelling microscope (STM) to investigate the electrically non-conductive materials, like proteins. NT-MDT is based in Moscow and has additional offices in Ireland, the Netherlands, China, and the United States.

The Irish NT-MDT subsidiary is located right next to the University of Limerick, and the two regularly partner in research projects. Interesting to note in that regard is that the University of Limerick

has long had a pioneering role in developing sophisticated private sector fundraising programmes, and in participating in public-private partnerships. Dr. Tofail Syed is a researcher and lecturer in the department of Physics and Energy at the University of Limerick. In recent years he became known as the lead scientist on a €5.4m project to develop a screening device which will allow for the early detection of Alzheimer's disease. The project team included six SME's from across Europe including NT-MDT Ireland, who provided key input into implementing a commercial table-top prototype. Dr. Syed is pleased with their new NTEGRA Spectra device and explains that NT-MDT's technology came out as the winner in the University's tender process chiefly

because it is unique in combining AFM with spectroscopy analysis and confocal microscopy techniques. "This basically means it can see very small things, typically thousands of times smaller than hair, while at the same time seeing the chemistry of the various physical and biological samples at that small size." Dr. Syed expects to use NTEGRA Spectra for a variety of projects, and for both scientific and industrial applications. "The machine is significant to us particular as it allows for a more holistic approach to research in general, and in particular will enable us to bring chemical nanoscopy into mainstream applications."

Mr. Stoiakine says that NTEGRA Spectra underscores NT-MDT's ability as an innovator: the company is at the forefront of developments in scientific microscopy and the integration of multiple technologies. "Four out of our six newest devices won awards. Our technology is used by scientists worldwide but we also offer mid-level AFMs which owing to their robustness are also suitable for industrial applications."



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