



# NEWS

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Technology in a Vacuum

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## Coating Medical Microneedles at Torr Scientific

Thin metal conductive films are being developed by Torr Scientific for a group of scientists at Imperial College in London who are developing microneedle devices for pain-free and minimally invasive sensing of drugs and metabolites in human skin. The aim of the work is to improve medical treatments by continuously measuring the levels of drugs and biomarkers and automatically adjusting the drug dose to account for individual patient responses. This should improve the drugs' effectiveness and reduce the occurrence of side effects. The microneedle arrays comprise sets of 1mm high polymer microneedles, a bit like a miniature bed of nails, which are being coated at Torr Scientific to make them electrically conducting and then modified with molecules that bind specifically to the drug or biomarker of interest. When this happens, there is a change in the electrical properties of the microneedles that can then be used to calculate how much is present. The first substances being measured are glucose (for diabetes) and penicillin (for antibiotic resistance) and the devices have already been tested in volunteers with encouraging results.



## Technical Sales Manager

Fenton Mann has been appointed technical sales manager at Torr Scientific. Fenton, who completed his master of physics studies at The University of Sussex, has gained valuable experience for the last two years as a thin films coatings specialist in the cleanrooms at Torr. Amy Loxley will support Fenton with customer communication and issuing of quotations. Please don't hesitate to send enquiries for Vacuum Optics or X-ray and Electron-Optical requirements to Fenton on [sales@torrscientific.co.uk](mailto:sales@torrscientific.co.uk) or via telephone on +44 (0)1424 225228



## Developing Vacuum Optic AR Coating Processes

Dr. Geanina Apachitei has joined Torr Scientific as Thin Films and Optics Production Specialist. Geanina, a Doctor of Physics, developed experimental and analytical experience during her studies at The University of Warwick in the fields of thin film fabrication, X-ray diffraction and microscopy. Geanina's main tasks will be to process anti-reflective coatings at Torr Scientific for vacuum optics used in UHV laser experiments and to develop new thin film coating processes. This will include the modelling of coatings, inspection using Torr's UV-Vis-IR spectrophotometer and commissioning of additional e-beam coating systems recently acquired to support increasing demand stimulated by Torr Scientific's involvement in development of optical UHV systems for quantum technology.

