# Press Release

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The Business of Science®

## Oxford Instruments Asylum Research and IOP Publishing Present the Webinar: "Exploring Flatlands: Characterizing 2D Materials with Atomic Force Microscopy

Nov. 11, 2016 (Santa Barbara, CA) Oxford Instruments Asylum Research in conjunction with IOP Publishing will present the webinar "Exploring Flatlands: Characterizing 2D Materials with Atomic Force Microscopy (AFM)" on December 13, 2016, 11:00 am EST. Registration is at https://www.oxford-instruments.com/2DMaterialsWebinar.

Ideal for researchers in both academia and industry, this webinar discusses the powerful techniques of today's AFMs for characterizing 2D materials that enable higher resolution, greater sensitivity, and more quantitative results for applications in device manufacturing, energy storage and optoelectronics. Dr. Andras Kis, Associate Professor at Ecole Polytechnique Federale de Lausanne (EPFL), and Keith Jones, Applications Scientist at Asylum Research, discuss the "hows" and "whys" of AFM measurements on:

- Molybdenum disulfide and graphene
- Measuring mechanical properties
- Kelvin probe force microscopy (KPFM) of operating transistors
- Electromechanical measurements
- Conductive AFM
- Scanning microwave impedance microscopy (sMIM)

Real-world examples will be presented. Additionally, they address how AFM can now be used to accurately determine the thickness of single or multiple layers of a 2D material. This will challenge the misconception that AFM cannot be used to precisely measure the thickness of 2D materials.

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“AFM has played an essential role in 2D materials research since it was used to confirm the first isolation of graphene,” said Jason Li, Applications Manager, Asylum Research. “Today’s AFMs are even more powerful, with higher spatial resolution, faster imaging rates, greater environmental control, and enhanced modes for mapping physical properties. AFM will continue to play an essential role in developing future 2D materials for a wide range of applications. This webinar will be an excellent education on how AFM tools are being used in this active research field.”

*Figure caption:* AFM topography image of a CVD-grown single crystal of $MoS_2$ on sapphire. Image courtesy A. Kis, adapted from *ACS Nano*, **2015**, *9* (4), pp 4611–4620.

**About Oxford Instruments Asylum Research**

Oxford Instruments Asylum Research is the technology leader in atomic force microscopy for both materials and bioscience research. Asylum Research AFMs are widely used by both academic and industrial researchers for characterizing samples from diverse fields spanning material science, polymers, thin films, energy research, and biophysics. In addition to routine imaging of sample topography and roughness, Asylum Research AFMs also offer unmatched resolution and quantitative measurement capability for nanoelectrical, nanomechanical and electromechanical characterization. Recent advances have made these measurements far simpler and more automated for increased consistency and productivity. Its Cypher™ and MFP-3D™ AFM product lines span a wide range of performance and budgets. Asylum Research also offers its exclusive SurfRider™ AFM probes among a comprehensive selection of AFM probes, accessories, and consumables. Sales, applications and service offices are located in the United States, Germany, United Kingdom, Japan, France, India, China and Taiwan, with distributor offices in other global regions.

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**About Oxford Instruments plc**

Oxford Instruments designs, supplies and supports high-technology tools and systems with a focus on research and industrial applications. Innovation has been the driving force behind Oxford Instruments' growth and success for over 50 years, and its strategy is to effect the successful commercialisation of these ideas by bringing them to market in a timely and customer-focused fashion.

The first technology business to be spun out from Oxford University, Oxford Instruments objective is to be the leading provider of new generation tools and systems for the research and industrial sectors with a focus on nanotechnology. Its key market sectors include nano-fabrication and nano-materials. The company's strategy is to expand the business into the life sciences arena, where nanotechnology and biotechnology intersect.

This involves the combination of core technologies in areas such as low temperature, high magnetic field and ultra high vacuum environments; Nuclear Magnetic Resonance; x-ray, electron, laser and optical based metrology; atomic force microscopy; optical imaging; advanced growth, deposition and etching.

Oxford Instruments aims to pursue responsible development and deeper understanding of our world through science and technology. Its products, expertise, and ideas address global issues such as energy, environment, security and health.

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