



## WITec and attocube launch cryoRaman

### Technology leaders combine expertise for very low-temperature Raman imaging

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Raman imaging innovator WITec GmbH and cryogenic microscopy specialist attocube systems AG have jointly introduced cryoRaman. This cryogenic Raman imaging system integrates attocube's leading-edge cryostat and nanopositioner technology with the vaunted sensitivity and modularity of WITec's alpha300 correlative microscope series. For the first time, Raman imaging at the lowest temperatures in high magnetic fields is now easily accessible with unmatched spatial resolution.

Designed to meet existing and emerging challenges, cryoRaman offers excitation wavelengths from VIS to NIR with optimized spectrometers, 1.6K to 300K operating temperatures, high magnetic fields, patented cryogenic Raman-specific objectives and an exceptionally precise piezoelectric scan stage.

"We've seen interest in cryogenic Raman grow rapidly and expand beyond the initial core of graphene and carbon nanotube research groups," said Florian Otto, Head of Business Sector Cryogenic Instruments at attocube. "We decided together with WITec to address the broadened user base's increasingly varied experimental requirements. cryoRaman is the successful realization of that effort to redefine low-temperature chemical characterization in terms of user-friendliness, flexibility and outright capability."

Research on phase-transitions and emergent properties of novel low-dimensional materials will benefit in particular from cryoRaman's high magnetic field options. The solenoid or vector magnets, with a strength of up to 12T, are ideal for investigating transition metal dichalcogenides (TMDs) and van der Waals heterostructures, and can also help in determining the temperature- and magnetic field-dependence of photoluminescence. Optional modules include precise software-controlled laser power adjustment, multi-wavelength excitation capabilities, automated switching from optical microscopy to spectroscopic imaging, automated spectrometer calibration light source and routines, and time-correlated single photon counting (TCSPC) modes.

cryoRaman also introduces a pair of unique functionalities to cryogenic Raman microscopy: the ability to detect low-wavenumber Raman peaks, and full polarization control in excitation and detection. "Researchers looking at materials in cryogenic environments like to get as close as possible to the excitation wavelength, and they're very interested in polarization measurements," said Olaf Hollricher, Co-founder and Managing Director at WITec. "To meet those requirements, we developed features that have no equivalent in the marketplace. In fact, with its imaging capability at low temperatures, level of integration, performance and accessibility to both Raman newcomers and experts, cryoRaman is really in a class by itself."

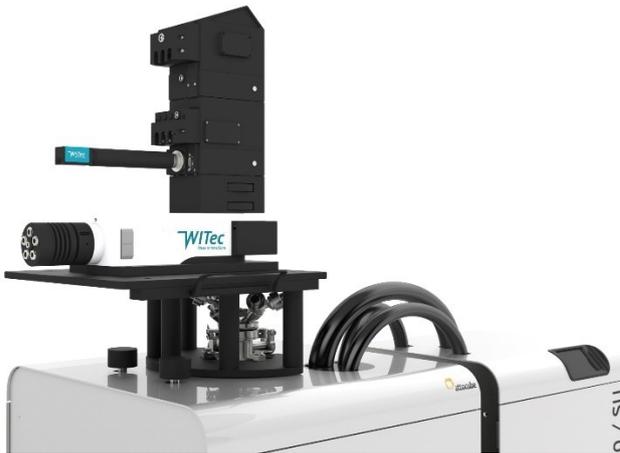
The close cooperation between attocube and WITec has produced an instrument ready for an unprecedented range of measurements. cryoRaman incorporates the very latest technology from two trailblazers in their respective fields to establish cryogenic Raman microscopy as a convenient, versatile and indispensable tool for materials scientists.



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### **About WITec**

WITec GmbH pioneered 3D Raman imaging and correlative microscopy and continues to lead the industry with a product portfolio that offers speed, sensitivity and resolution without compromise. Raman, AFM and SNOM microscopes, combinations thereof, and WITec-developed Raman-SEM (RISE) systems can be configured for specific challenges in chemical and structural characterization through a modular hardware and software architecture with built-in capacity for expansion. Research, development and production are located at WITec headquarters in Ulm, Germany, and the WITec sales and support network has an established presence in every global region.

### **About attocube**

attocube systems AG is a leading pioneer for nanotechnology solutions in industry and research. The company develops, produces and distributes components and systems for nanoscale applications such as precision motion, cryogenic microscopy, and nanoscale analytics. All products are manufactured in the NanoFactory, the company's headquarters in Haar, close to Munich. An international team of 200 physicists, engineers, software developers, and product designers work in close collaboration from conception through to delivery. attocube has sales offices in the US and a broad network of worldwide distributors, covering more than 40 countries and 4,000 customers.



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**Contact WITec**

Damon Strom  
Technical Marketing and Editing  
[Damon.Strom@witec.de](mailto:Damon.Strom@witec.de)

[www.witec.de](http://www.witec.de)  
[info@witec.de](mailto:info@witec.de)

WITec GmbH  
Lise-Meitner-Str. 6  
89081 Ulm, Germany

phone: +49 (0) 731 140 70-0  
fax: +49 (0) 731 140 70-200

**Contact attocube**

Verena Kümmerling  
Head of Marketing Services  
[Verena.Kuemmerling@attocube.com](mailto:Verena.Kuemmerling@attocube.com)

[www.attocube.com](http://www.attocube.com)  
[info@attocube.com](mailto:info@attocube.com)

attocube systems AG  
Eglfinger Weg 2  
85540 Haar, Germany

phone: +49 89 420 797 0  
fax: +49 89 420 797 201 90