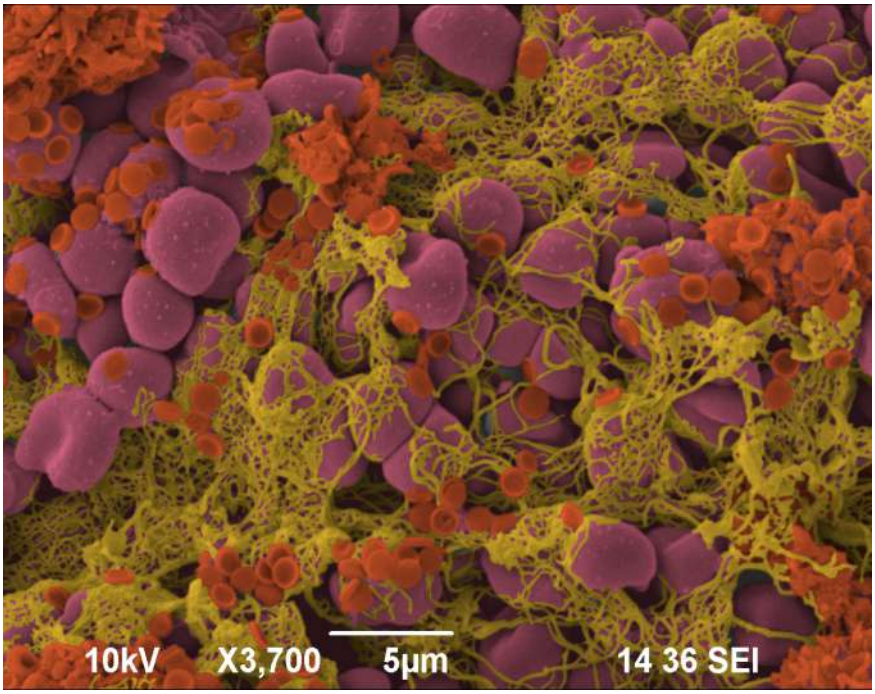
SEM | TEM | CRYO TEM | MASS SPEC | NMR | ESR | EPMA | AUGER | FIB | SAMPLE PREP | APPLICATIONS EXPERTISE | SERVICE

JEOL Solutions for Innovation

JEOLink Newsletter

SEPTEMBER 2019 | ISSUE #87

JEOL Image Contest 2019



Congratulations to Dr. Patrick Nahirney of Victoria College!

"Wilson!" is the winner of the JEOL Image Contest for the month of July. Dr. Nahirney describes the image as a cross-section of sound-producing muscle fiber in the type 1 midshipman fish. Myofibrils are arranged into sheets that are separated by a dense array of sarcoplasmic reticulum. Mitochondria occupy the outer (upper left) and inner aspect (lower right) of the fiber. Sonic muscle fibers have the ability to contract at a rate of 10Table Properties0 Hz for up to 2 hrs to attract females. Taken on a JEOL JEM-1400 TEM.

Congratulations to our August winner, Simone Lauciello of IIT!

Blood Clot is the August 2019 winning image. Submitted by Simone Lauciello, IIT - Fondazione Istituto Italiano di Tecnologia. The image shows red blood cells, fibrin, and DPNs (polymeric nanoparticles). It was acquired using the JEOL JSM-

6490LV SEM and colorized using Mountain Map Software.

Do you have a winning image? Join in our image contest for a chance to win in September, October, November or December 2019. A Grand Prize SEM/EPMA and TEM image are announced at the end of the year.

Submit an Image | **Image Contest Gallery**

Introducing the JSM-F100

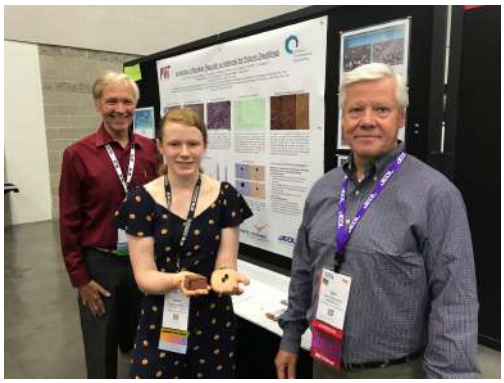
Next Level of Analytical Intelligence in FE-SEM

A new JEOL Field Emission SEM made its debut at M&M 2019 in August. We now have a JSM-F100 in our Peabody, Mass. demonstration lab. Learn more about this new high throughput SEM with one-click integration of optical imaging, SEM imaging, and EDS Live Analysis, NeoEngine electron beam control system, and advanced auto functions.

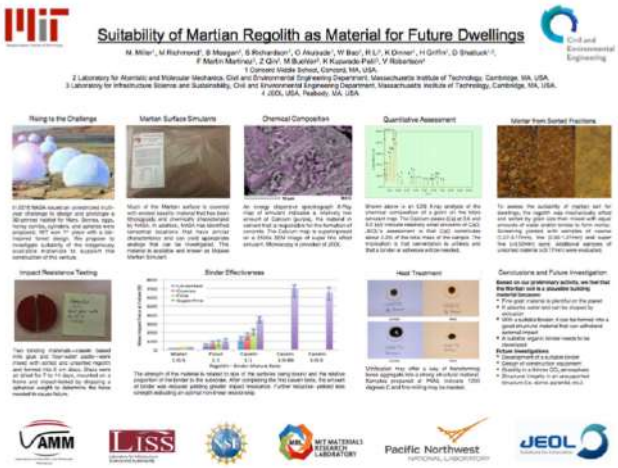
JEM F100 SEM

- High spatial resolution imaging and analysis at nanoscale
- Large specimen chamber with multiple ports
- Montage images and elemental maps
- Smile View Lab for data management and report generation
- Live Analysis with integrated JEOL EDS elemental screening

Middle School Students Evaluate How to Build Structures from Martian Soil



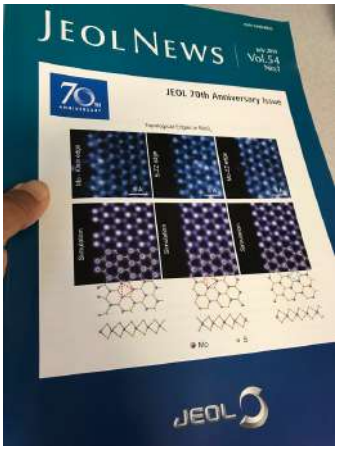
Just think about the logistics of building on Mars. What's the best way to get all the materials there? Wouldn't it be easier to use the natural resources of the planet? But what resources and how would they be used to 3D print human dwellings – while actually on Mars? That's the problem that 8th (now 9th) grade students at Concord-Carlisle Middle School, in collaboration with Massachusetts Institute of Technology and JEOL USA, set out to solve when they responded to a NASA challenge for the development of innovative technologies to support human colonization of Mars by 2050. **Read the full story and link to the poster>**



JEOL Celebrates 70th Anniversary at M&M 2019 - Portland, Oregon

Thanks to all who joined us at M&M 2019 for demos, tutorials, festivities, and to just say hello or meet with us. Enjoy our video presentation of scenes from this year's meeting!

Click here to see video. >



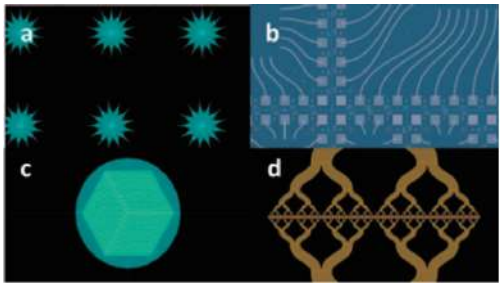
JEOL News Magazine
70th Anniversary Issue

A message from our Chairman & CEO
and President & COO

Join in the memories!

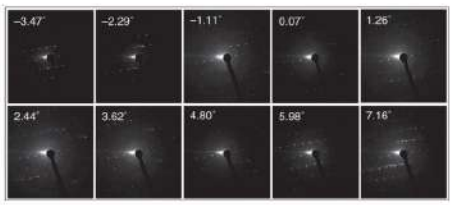
Do you have old photos of JEOL microscopes or analytical instruments at work in your lab - register on our JEOL USA website and share them on our History of JEOL page. Or send them to jeolink@jeol.com. Also see our JEOL Milestones page.

New CNF E-Beam Article in JEOL News



Modern e-beam systems are used to pattern devices and structures for challenging novel projects. Researchers at Cornell NanoScale Science and Technology Facility (CNF) automate data manipulation and sharpen lithographically-patterned geometric shapes as features are made smaller, plus offer a method of patterning on 3D surfaces. Request a copy or download the latest JEOL News magazine to read "Practical Solutions in Electron Beam Lithography with the JBX-9500FS and the JBX-6300FS" by DM Tennant, A Banerjee, C Treichler and AR Bleier. CNF hosted its annual meeting Sept 12.

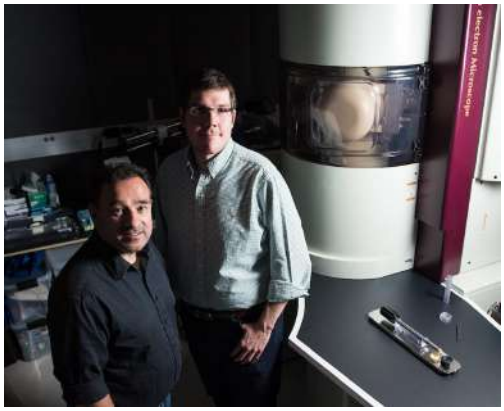
Pioneering NMR Crystallography for Drug Discovery



Selected ED patterns of the L-histidine microcrystal during continuous rotation. The number of each frame represents a starting rotation angle of each ED pattern. The diffraction patterns were obtained every 1.16°

Researchers have integrated whole structure analysis by electron diffraction and local structure analysis by solid-state NMR to observe microcrystals of 0.1–1 μm

A Window into the Hidden Nuclear World

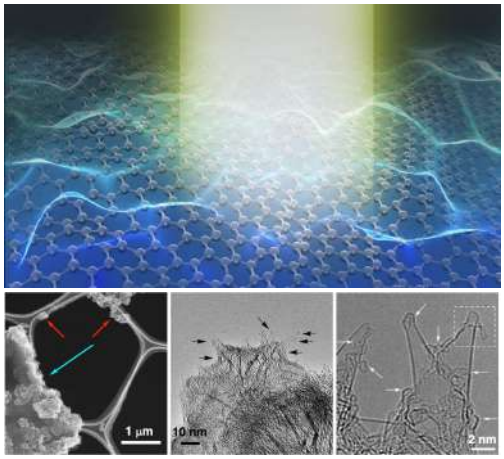


First atomic-scale actinide spectroscopy sheds light on key material.

Atoms Vibrate in Graphene Nanostructures

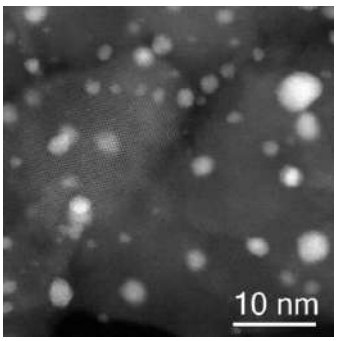
Innovative new electron spectroscopy technique pushes the limits of nanospectroscopy for materials design.

[Chemical Synthesis at an Atomic Level]



For the first time, researchers have managed to view previously inaccessible details of certain chemical processes.

[Direct synthesis of hydrogen peroxide using TS-1 supported catalysts]

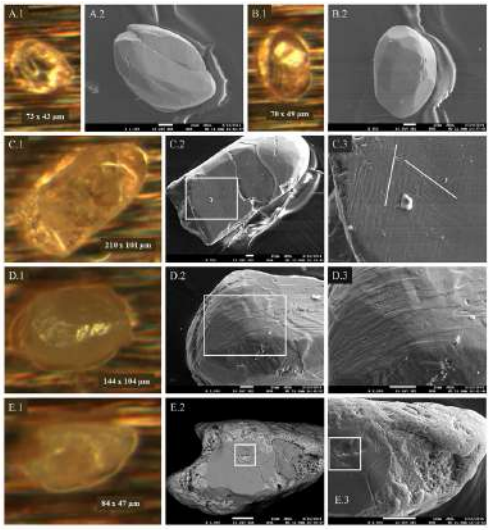


Direct synthesis of H_2O_2 from hydrogen and oxygen using a commercial titanium silicate called TS-1 as a support for Gold Palladium (AuPd) and Gold Palladium Platinum (AuPdPt) catalysts, a reaction that could be carried out in situ as the first step in a manufacturing process.

[An innovative electron microscope overturning common knowledge of 88 years history]

Groundbreaking TEM technology! A newly developed magnetic objective-lens system for a magnetic-field-free environment at the sample position enables direct, atom-resolved imaging of magnetic materials such as silicon steels. Developed by Prof. Naoya Shibata at the University of Tokyo and
JEOL Ltd.

[ASU researchers study largest impact crater in the US, buried for 35 million years]



Researchers at Arizona State University have found clear traces of the asteroid impact in Chesapeake Bay and dated them for the first time using the uranium-thorium-helium technique. Lead author Marc Biren identified and processed the shocked zircon fragments for imaging and chemical analysis with the JEOL microprobe.

[Get to know the NeoScope Benchtop SEM]

New NeoScope Benchtop SEM video by McCrone.

[UH student finds new compound in Apollo 17 lunar dust samples]

Nearly 50 years have passed since Schmitt and fellow astronaut Gene Cernan brought these and other samples back from the moon. And calcium sulfide has just now been found.

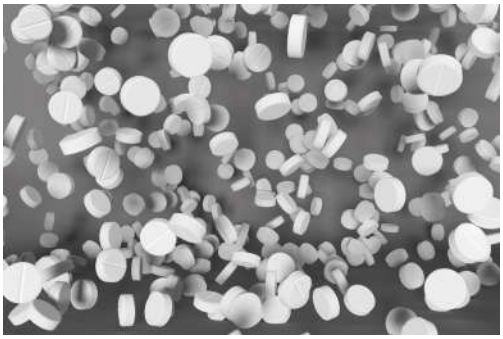
Applications Notes

We have updated our library of applications notes for Scanning Electron Microscopes and Electron Microprobes. To request a pdf of any of the notes, click on the links for SEM or EPMA.

You may be interested in our latest Mass Spec and NMR news:

[Revealing Ancient Secrets with Mass Spectrometry]

For some chemists, the science is their first love and the lab is where all their work takes place. For Professor Ruth Ann Armitage at Eastern Michigan University, the application of chemistry to the field of archeology has led her outside the lab to work with museum curators and archeologists and back again with some unusual samples to analyze.



[A 1H Solid State NMR Application for Pharmaceutical Development by using Ultra Fast MAS: Drug-Polymer Intermolecular Interaction on Solid Dispersions]

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Contact us at jeolink@jeol.com.

Our 2019 **Calendar of Events** is now online.

Our 2019 **Training Schedule** is now online.

Click on a category below to learn more about JEOL instruments.

SEM | TEM | EPMA | Sample Prep | NMR | Mass Spec | FIB | E-Beam | Elemental Analysis

Contact Us At:
JEOL USA, Inc. | 11 Dearborn Road | Peabody, MA 01960
Phone: 978-536-5900 | salesinfo@jeol.com