

# The Rhode Island Consortium for Nanoscience and Nanotechnology: An Advanced Nanomaterial Characterization Center

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The Rhode Island Consortium for Nanoscience and Nanotechnology (RIN2) is a multi-user materials characterization facility that enables cutting-edge academic and industrial research and education through access to advanced material characterization equipment. It is the only materials characterization center in Rhode Island offering cryogenic scanning and transmission electron microscopy.

Specific objectives of RIN2 are:

- Offer advanced materials characterization to users at URI, other academic institutions, non-profits and industries
- Provide theoretical and hands-on training on these tools and related processes to the next generation of researchers at the pre-college, undergraduate, graduate and post-graduate level
- Connect researchers from different disciplines and foster collaboration to solve grand challenges

The instruments available at RIN2 are:

- Transmission electron microscope (TEM) with cryogenic and elemental analysis capabilities: JEOL JEM-2100 equipped with a Gatan cryotransfer holder and Oxford Instruments energy dispersive X-ray spectrometer (EDS)
- Scanning electron microscope (SEM) with cryogenic and elemental analysis capabilities: Zeiss Sigma-VP field emission SEM equipped with variable pressure, secondary electron, in-lens and backscattering detectors, a Gatan Alto cryogenic preparation and loading module, and Oxford Instruments energy dispersive X-ray spectrometer (EDS)
- X-ray diffraction (XRD): Rigaku Ultima IV X-ray diffractometer
- Confocal Raman microscope (CRM): WITec alpha 300 R equipped with motorized XYZ stage for large area acquisition, two excitation laser wavelengths (785 and 532 nm) and 10x to 100x objectives
- High-content screening system (HCS): Perkin Elmer Opera Phenix high-throughput confocal fluorescence microscope

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