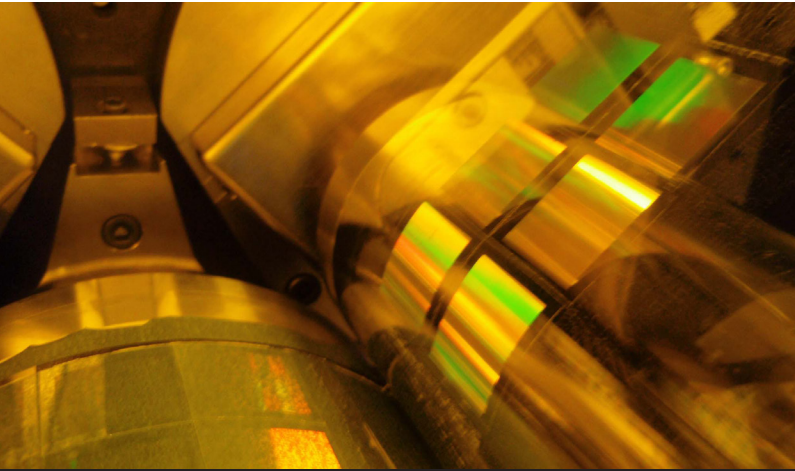


Roll to Roll Fabrication



umass.edu/ials/roll-to-roll-fabrication

Located on the 4th floor in the Life Science Laboratories the Roll to Roll Fabrication facility provides a unique set of custom, moving web-based tools for the translation of advanced materials and nanomanufacturing processes to industrially relevant scalable platforms for the development of next generation life science innovations in biosensors, diagnostics, and platforms for personalized health monitoring. Combined with additional web-based tools for vacuum sputter deposition, reactive ion etching, wet chemistry, and interlayer alignment, providing access to an emerging set of tools not found anywhere else.

We offer training to users to develop processes and conduct experimentation for use on a fee for service basis to both internal and external researchers, academic or industry based. Following an initial consultation to better understand the user's goals, process or device interests, suggested tool capabilities, experimental parameters, training and access is arranged through the director. Facility staff and faculty researchers are available to assist on an as-needed basis, or through collaborative programs leveraging targeted expertise.

ACCESS

To request access, training, or additional information please contact Jeff Morse at jdmorse@research.umass.edu.

Our rates are competitive and tiered based on needs and usage. Visit our website at umass.edu/ials/roll-to-roll-fabrication for current listing.

TRAINING

Training for new users consists of:

- lab safety training,
- operation of the instrument and associated software,
- use of data analysis software,
- exporting or presenting data,
- clean up and shutdown of the instrumentation.

Once the training is complete, users may schedule their activities and tool use with the director of R2R (Jeff Morse) or online through FOM (Facilities Online Manager) at fom.umass.edu/fom

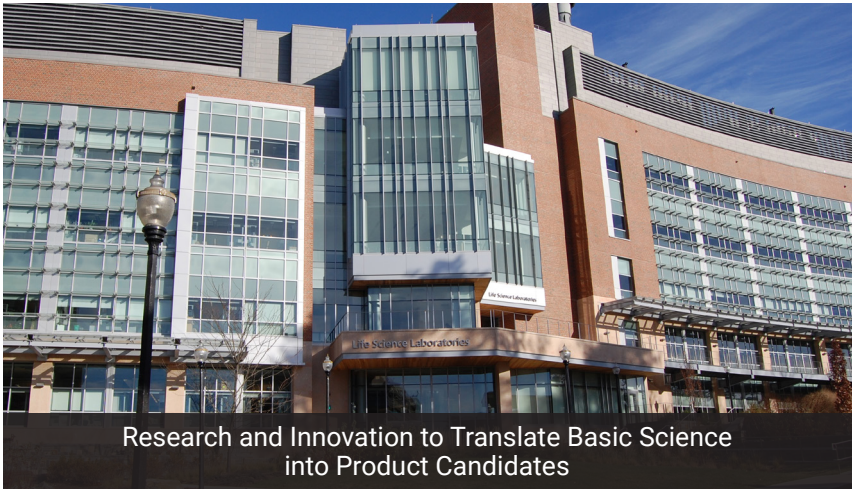
UMassAmherst | Core Facilities

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UMassAmherst | Core Facilities

Roll-to-Roll Fabrication

Institute for Applied Life Sciences
University of Massachusetts Amherst



Research and Innovation to Translate Basic Science
into Product Candidates

PARTNER WITH US!

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Custom, Moving
Web-Based Tools
for Translational
Advanced Materials &
Nanomanufacturing
Processes

Revision (08/17/18)

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UMassAmherst

EQUIPMENT

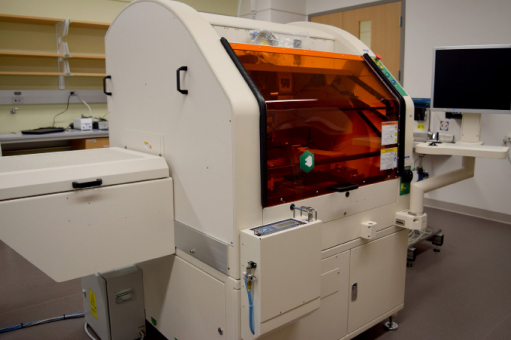
AJA R2R Sputtering System

The AJA sputter deposition tool provides industry standard vacuum deposition capability for a range of metals, dielectrics, and magnetic materials.

Adphos Near IR 126-125 Drying / Sintering

Wavelength: Peak in Near IR, extend to visible & IR

Besi Datacon 2200 Evo Plus R2R Pick and Place/ Bonding Tool for Hybrid Integration



The web-based pick and place/die attach tool provides users with an advanced capability to develop methods for flexible-hybrid electronic circuit integration and system prototyping.

Dimatix DMP 2831

Desktop inkjet printers are available for patterning of several conductive commercial inks and developing prototype processes and designs.

Frontier Coater



The Frontier coater is a versatile tool enabling solution-based coatings over a range of viscosity and thicknesses for the development of advanced coatings.

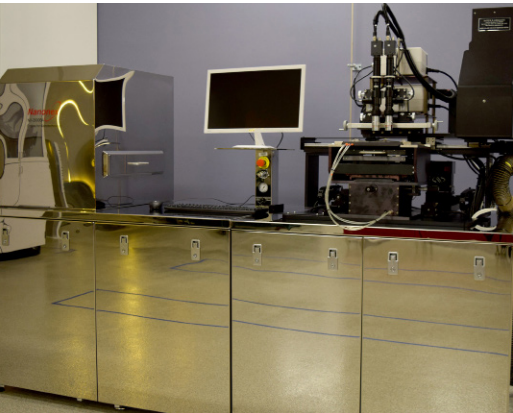
LSL Dry Room

Dry and Wet labs enable process development under controlled environments for repeatable, reliable results.

Nanocoater 100

The Nanocoater is a versatile tool enabling solution-based coatings over a range of viscosity and thicknesses.

Nanonex NX-2608BA



The Nanonex Nanoinprint Lithography tool provides state-of-the-art capability for patterning, alignment, and direct printing of multiple materials for printed electronics.

Optomec Aerosol Jet 300

Additive 3D printing capabilities include both Aerosol Jet and Inkjet platforms providing versatility in terms of materials and inks available, range of viscosity, and post deposition cure by UV or IR photonic cure.

PulseForge 1300 Photonic Sintering

Pulseforge photonic cure offers visible and UV spectral sources for photothermal processing of coatings and composites in a batch format.

R2R Contact Lithography Active Alignment Registration

Moving web tool uses gravure/meyer-rod coating of functional resist or thin-film with contact print to mask pattern for direct photolithographic exposure by UV source. Imaging feedback enables active alignment of patterns.

R2R Direct Write Test Frame

Roll to roll direct write test frame incorporates direct image photolithographic patterning of coating implemented by inkjet or gravure coating. The digital patterning is enabled by DLP imaging, and target registration alignment uses an active pattern recognition feedback feature.

R2R Nanoinprint Lithography

The R2R NanoImprint tool provides a unique suite of capabilities enabling innovative process development including patterning across multiple length-scales, and direct printing of a range of materials compositions.

R2R Spatial Atomic Layer Deposition

R2R-SALD provides a unique capability for high quality coatings on a moving web.

R2R UV-NIL Tool

UMass NANOemBOSS R2RNIL constructed with Carpe Diem Technologies.

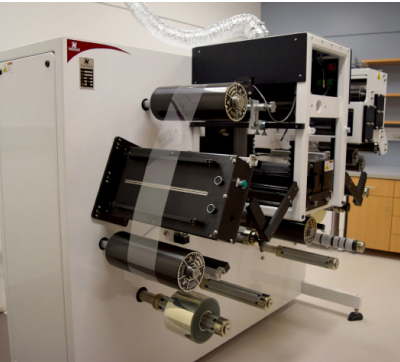
R2R Inkjet Printer/Gravure Coater with Photonic Cure

This custom R2R tool provides state-of-the-art capability for development of advanced materials and inks for emerging printed electronic applications, including capability to directly pattern features and optimize properties using photothermal processing/sintering.

Trion R2R DRIE & IBM System

The Trion Deep Reactive Ion and Ion Beam Etcher provides vacuum-based dry etch capability compatible with several substrates (plastic, glass, metal foil).

UMass Slitter/Laminator



This custom built atmospheric slitter/laminator tool enables final sizing, slitting and lamination steps to be completed for prototyping and test.

Yasui Seiki Mini-Labo

Yasui Seiki Mini-Labo microgravure tool for coating development on 4" webs.

MASSACHUSETTS
LIFE SCIENCES CENTER

A significant portion of core equipment
has been purchased through MLSC grant
funding support.