

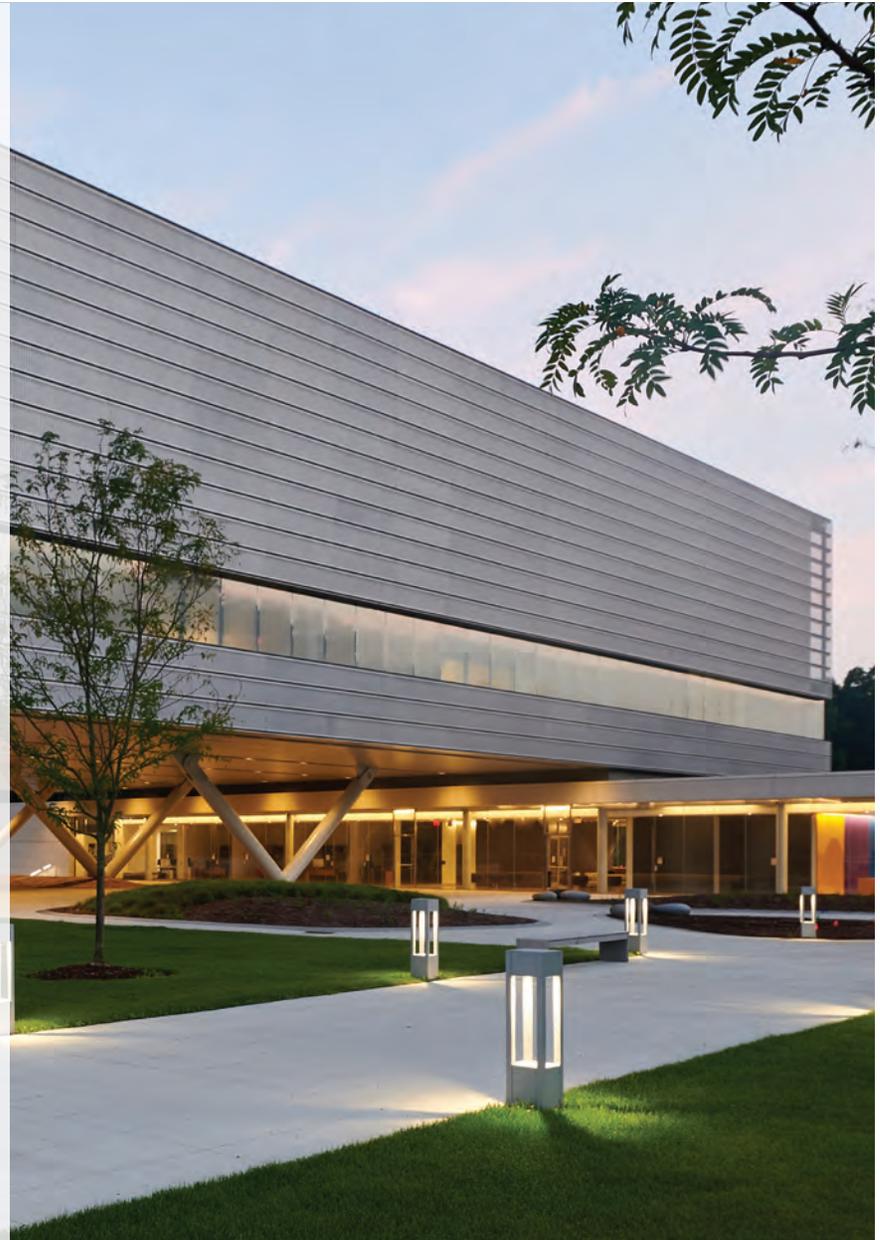
INNOVATION PARTNERSHIP BUILDING

AT UCONN TECH PARK



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Executive Director of the Innovation Partnership
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A Conversation with Pamir Alpay, Executive Director of the Innovation Partnership Building at the UConn Tech Park

Dr. Pamir Alpay, an internationally recognized materials scientist, became executive director of the Innovation Partnership Building (IPB) at the UConn Tech Park in September 2017. Some of the IPB's research centers began operation in October, and the remainder are scheduled to be fully operational in early fall 2018. The facility also has additional bandwidth and space to take on new industry partners.

What is the Innovation Partnership Building?

The IPB at the UConn Tech Park is a real point of pride for the university, with state of the art facilities and instrumentation to conduct cutting-edge research. The IPB was made possible thanks to strong industry partnerships, university commitment and effort to work with industry, in particular from the UConn School of Engineering, and a significant state investment through the Next Generation Connecticut initiative. This unique space was specifically designed to reinvigorate industry-academic partnerships in the state so that we can bring together businesses of all sizes with faculty experts for both short- and long-term projects. Universities and private companies have very different cultures and it is a major challenge to understand and address these differences. One way to bridge the gap is to create an innovation hub where a hybrid of university-industry cultures is the norm. This way we can

help companies reach their strategic objectives, be innovative, and excel in the development of new technologies.

We are off to a great start with ten research centers already established and funded by local and global industry leaders such as United Technologies and Fraunhofer. At the IPB, our partner companies work with expert faculty and talented student researchers to find solutions in a variety of fields, like additive manufacturing, process modeling, materials testing, advanced characterization, data sciences, cybersecurity and cyber physical security, systems engineering, weather prediction – we can really cover a wide range of industry sectors.

As for our future vision and strategy, we want to continue to grow and expand our capabilities and the ways we support industry around the state.

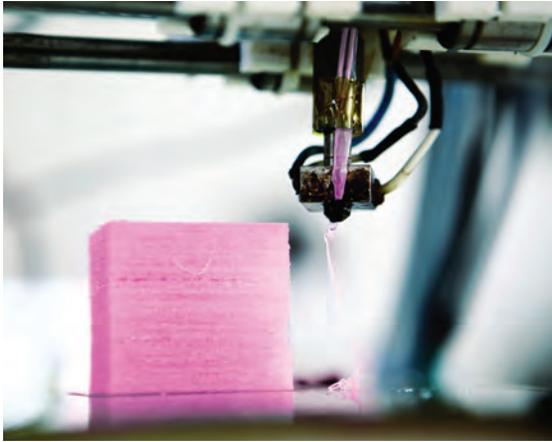
What makes the IPB special?

First and foremost is the unique purpose behind the development of the IPB, which is to provide a place where researchers from industry and academia can work side-by-side applying their specialized expertise at the IPB's unparalleled R&D facilities to address the emerging needs of industry. The building itself and the equipment housed within its centers were designed and acquired with this mission



Dr. Pamir Alpay, an internationally recognized materials scientist, became executive director of the Innovation Partnership Building (IPB) at UConn Tech Park in September 2017.

in mind. The IPB is a 113,700-square-foot facility located on the Storrs campus. We have three core lab research spaces: an advanced characterization lab with 11 electron microscopes, a high-bay advanced additive-manufacturing center, and a proof of concept center / manufacturing simulation center. The IPB also has flexible wet/dry lab space available for future tenants. The building operates and maintains extensive state of the art instrumentation including over \$40 million of high tech equipment. It's totally unique to find all of this equipment under a single roof. Our main goal is to make it easy for industry to access these resources and the expert researchers who know best how to employ their capabilities. Normally this type of instrumentation can only be found at a national lab, and it's usually very complicated (if not impossible) for a company to be allowed access.



While it's easy to be enamored of the fancy equipment, our center directors really are our greatest assets. Whatever image you might have of professors in the ivory tower, get rid of it. These are highly trained scientists who have extensive experience working with industry. They could have easily been VPs instead of academic researchers. They know the landscape, they know the people, and they know the technologies in industry sectors to really find solutions and add value. They roll up their sleeves and work with businesses to solve real-world problems so companies can get to the next level with their R&D.

How can Connecticut businesses take advantage of the facilities, services, and technology that the IPB offers?

We have the flexibility to interact with businesses in a lot of different ways since our goal is to serve as a vital place to do industrial research at all levels in a variety of sectors. From

local startups to large global corporations – the IPB is open to partnerships and can find appropriate models to meet individual business needs. We provide a spectrum of services and models because there isn't a one-size-fits-all solution in industry. A team of talented engineering students could work on a specific challenge as part of a senior design project; UConn researchers could help with projects on a fee-for-service basis; or a company could establish a continued presence through the formation of a research center so that UConn's expert faculty can support long-term R&D goals – it runs the gamut. We can work with interested companies individually to identify the ideal model for their business needs.

Can you provide some specific examples of how companies are working with the IPB centers?

For instance, there are three research centers at the IPB funded by our anchor partner, United Technologies Corporation. The first center established was the Additive Manufacturing

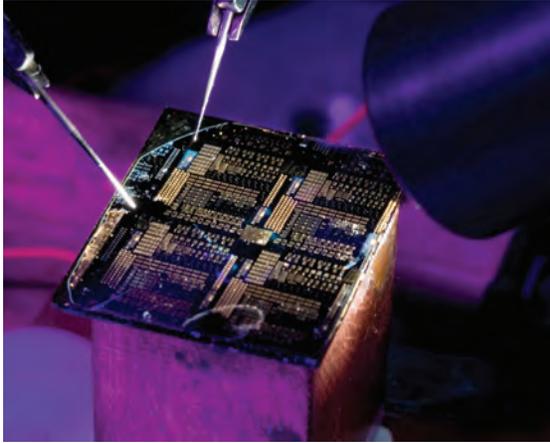


Innovation Center in partnership with Pratt & Whitney. Here, we look into issues related to additive manufacturing, or 3-D printing, of metallic aerospace parts. This is a new technology and its application to complex alloys as used in turbine blades and other aircraft components has not been fully understood.

There's also the UTC Institute for Advanced Systems Engineering, where researchers analyze complex systems such as a smart building or an airplane to optimize the entire operation for optimal performance.

The most recently established is the UTC Aerospace Systems Center for Advanced Materials, where we develop new aluminum alloys for new applications in airframes.

Partnering with the state through the Department of Economic and Community Development (DECD), we have also attracted international companies like Fraunhofer, which



recently established a research center. This is a major success for Connecticut. Fraunhofer delivers what the economy needs – innovation, which is one of the most important factors in achieving commercial success. Their focus is on applied research, to use science and technology to create innovative products and applications.

We also have an upcoming workshop at the Connecticut Manufacturing Simulation Center (CMSC) that could be of interest to a lot of Connecticut's businesses. Through the CMSC, we're going to show partners how to simulate their manufacturing processes to eliminate the need for costly and time-consuming trial and error. Using sophisticated software, small- and medium-sized businesses can see what manufacturing processes will work best – or not – before implementing them. These workshops begin soon and are open to anyone. Just contact us to reserve a space.

How will the IPB at the UConn Tech Park impact students at UConn? How will it impact the business community?

That's a great question, and to a certain extent, the answer is the same for both groups – the IPB opens doors to new possibilities and solutions for the business community, and it also opens doors for UConn's students and faculty.

For our industry partners, the IPB allows for unique access to specialized expertise and equipment that can help them solve challenges they're facing now and take their technologies to the next level for the future. We want to help small, medium, and large companies realize their moon-shot ideas. As researchers, this sort of creative, innovative thinking drives us, but we're also here to serve our students.

Working with industry lets us open so many doors for the future generation of engineers and business leaders, most of whom will go on to work in industry after graduation.



Starting as early as the undergraduate level, motivated students have the chance to interact and work with faculty on precompetitive research projects that attract industry investment for long-term success. The projects we tackle in the IPB research centers give students hands-on experience, introduce them to potential future employers, and train them to be highly competitive, productive members of Connecticut's innovation workforce so they stay in the state. Thanks to these unique experiences, UConn students are exposed to the innovative process and in turn often become creative innovators themselves. It's a win-win-win for our partner companies, our students, and for the state of Connecticut.

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<https://t.e2ma.net/message/qq0wrm/ud5y3pb>
Contains minor revisions and updated information

Quick Facts

EXPLORE OUR RESEARCH & TECHNOLOGY EXPERTISE

The Innovation Partnership Building (IPB) at UConn Tech Park is a focal point for innovative, groundbreaking research. Teams of world-class scientists collaborate at the IPB to develop novel technologies in core research fields such as energy, electronics, materials science, additive manufacturing and cybersecurity.



Energy — UConn resources and faculty expertise support R&D and commercialization efforts for clean and efficient energy systems.



Life Sciences — UConn faculty combine state of the art engineering techniques with expertise in biological sciences and medicine to improve the quality of human health and life.



Materials — UConn houses some of the most sophisticated materials research technology of its kind, with applications to a wide range of industry products, from advanced turbine jet engine components to prosthetic implants.



Cybersecurity — UConn is a national leader in computer hardware security research. Cutting edge research in cybersecurity helps protect vital functions such as national security, commerce, energy, and transportation.



Manufacturing — UConn advances manufacturing techniques with state of the art equipment, partnering with businesses to explore prototypes and manufacturing processes, leading to increased efficiencies and lower design and manufacturing costs



Data Sciences — UConn expertise in data sciences is applied across diverse areas of research, from finance to insurance to engineering, with continual opportunities for innovation and discovery of new applications.

PARTNER WITH UCONN

Leverage these distinctive IPB assets:

- World-class faculty with diverse research interests
- State of the art equipment and laboratories
- Collaborative, innovative and entrepreneurial ecosystem

INVESTED IN THE FUTURE

\$100M

invested in the IPB building project

\$40M

invested in state of the art research equipment

\$30M

invested in roads and site improvements

The IPB provides the highest caliber academic expertise and the most advanced equipment. Within the IPB's unique environment, small to large sized companies and entrepreneurs collaborate with UConn researchers to advance innovative new technologies, achieve research breakthroughs, and generate high paying jobs for the State of Connecticut.

MAJOR INDUSTRY PARTNERS

10

major industry partners committed more than \$80 million in funding to advance research at UConn.

ADVANTAGES

MICROSCOPY

100+ million

times magnification capability of Titan Themis TEM, Thermo Fisher Scientific's flagship microscope, allowing scientists to see individual atoms and evaluate their properties. UConn houses one of the world's foremost facilities for electron microscopy.

WEATHER FORECASTING

1.8 million

Eversource power customers who benefit from UConn's Outage Prediction Model, the first of its kind to be developed at the Eversource Energy Center. Developing the model required analyzing megabytes and terabytes of power infrastructure data.

MATERIALS TESTING

10 tons

static force can be exerted by the Gleeble 3500, a sophisticated simulator that is applied in industry to explore new production techniques, potentially reducing development timelines and cutting production costs.

STATE OF THE ART FACILITY

The IPB is an innovative, exciting focal point at the forefront of research, instituting a far-reaching network of resources, programs and collaborations that extend throughout the state of Connecticut and beyond.

FEATURES

113,700

square feet on three floors

3,800

feet from main campus
(North Hillside Road)

15

minute walk from campus

THE IPB FOUNDATION EXTENDS AS MUCH AS

80

feet underground to maintain stability of equipment that is highly sensitive to vibrations such as the precision lasers and highly sensitive electron microscopes housed in the Advanced Characterization Lab (ACL).

DRIVING INNOVATION/ COLLABORATION IN CT

8,000

companies within two hours' drive to UConn perform work relevant to the IPB, with research applications in clean energy, medical devices, aerospace, cybersecurity, and more.



THE IPB IS BUILT ON A TRACT OF

22

acres of wooded land and wetlands on North Campus, which comprises 514 acres. To minimize environmental impact, 'green corridors' were constructed and allow animal movement within their natural environment. Local flora and fauna have been preserved in and around the IPB site.

Overview



Dean Kazem Kazerounian
School of Engineering

ee The Innovation Partnership Building represents a generous investment by the citizens of Connecticut at a time when the state is facing serious budget constraints. Connecticut's leadership recognized that the old manufacturing economy is not coming back and that the state needs to secure its future by strengthening its knowledge-based economy. The survival of our industrial companies now depends on access to advanced technologies, including skilled workforce, technology translation and infusion, and advanced laboratory infrastructure, all of which are supported by the IPB.

UConn Engineering is uniquely positioned to advance the mission of the IPB as it strives to build Connecticut's industrial infrastructure. The School of Engineering has proven to be a reliable partner with industry and has taken the lead to support the university in working to establish impactful industrial partnerships at the IPB. Engineering-led industrial partnerships described in this brochure have brought \$80M to UConn's IPB/ TechPark in the past five years, and we will continue to reach out to industry to develop meaningful collaborations.

Our vision is to make the IPB the gateway for industry collaborations across the university. Our faculty and students are motivated by the many opportunities for making significant contributions that are enabled by Tech Park partnerships, and we will continue to do everything we can to engage industry in Connecticut.





The Innovation Partnership Building (IPB) at UConn Tech Park, located on UConn's North Campus in Storrs, Connecticut, is a \$172M facility funded through the State of Connecticut to create a state of the art research center that fosters expansion of academic-industry partnerships and promotes economic growth in the State of Connecticut.

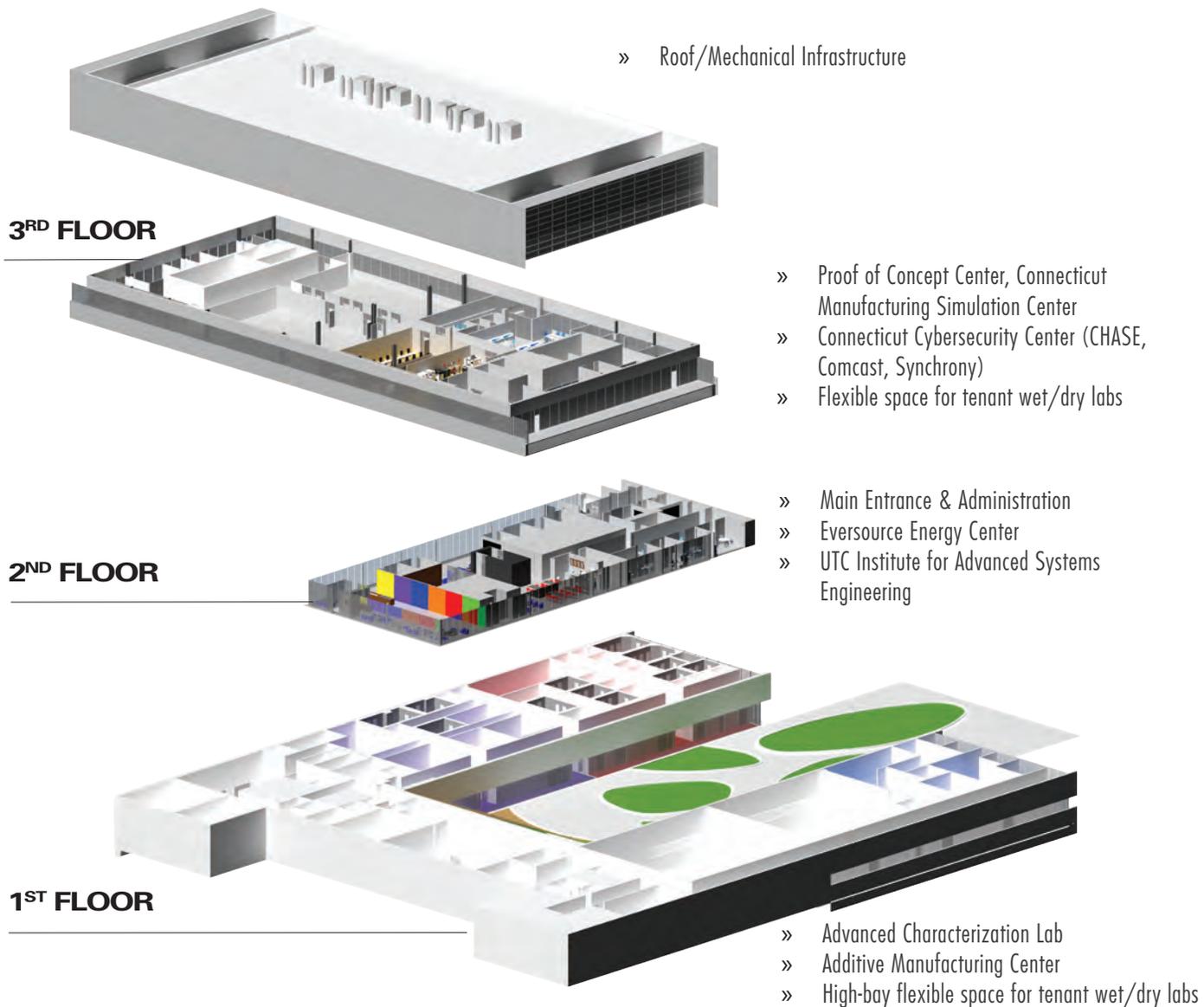
The IPB is uniquely positioned to provide a place where researchers from industry and academia can work side-by-side, applying their specialized expertise to address the emerging needs of industry. The 113,700-square-foot space offers access to cutting-edge equipment, world-class faculty, and top-tier graduate and undergraduate students who collaborate with industry partners and businesses of all sizes to bring new technologies and ideas to market.



Overview

The IPB has three floors that provide a combination of flexible and functional office and laboratory space designed to meet the needs of research and education. A network of indoor and outdoor social areas increases the feeling of community at the facility and is designed to encourage intellectual and multidisciplinary collaboration and cultivate innovative thinking.





Tech Park has ten research centers that collaborate with small and large businesses, entrepreneurs, and researchers to develop novel solutions to technological challenges in additive manufacturing, materials testing, cybersecurity, clean energy and more. Eight centers are currently housed at IPB and a ninth center, Fraunhofer, will begin operating in IPB in early fall 2018. In addition, Squared Labs, a team of creative UConn students and faculty who design striking UConn research websites, has been established here. By fall 2018, a total of over 100 people, including UConn faculty, students, staff and technical personnel will be located in the building.

IPB operates and maintains over \$40 million of state of the art instrumentation available to research partners and has three core lab spaces:

- An advanced characterization lab (ACL) with 11 world class microscopes
- A high-bay advanced additive manufacturing center (AMC)
- Proof of Concept Center (POCC) and Connecticut Manufacturing Simulation Center (CMSC)

Additionally, flexible wet/dry lab space is available for future tenants on the 1st and 3rd floors.

Organization



RADENKA MARIC
Vice President for Research



PAMIR ALPAY
Executive Director IPB

Administrative Support and Marketing



RAELENE DEROBERTIS
Executive Administrative Assistant



MELANIE NOBLE
Executive Administrative Assistant



HEIKE BRUECKNER
Graphic & Website Design

Scientific and Technical Support



MARK BIRON
Additive Manufacturing Center



JOSEPH LUCIANI
Proof of Concept Center (POCC)
Quiet Corner Innovation Cluster (QCIC)



DANIELA MORALES
X-ray Laboratories



LUCAS PARENT
Electron Microscopy Research
Scientist



ROGER RISTAU
Lab Manager
CAMMA



LICHUN ZHANG
Microscopy Specialist
CAMMA

Building Management & Safety



BEN ANACLETO
Laboratory Services Manager



BRIAN CARDINAL
Building Manager

Small Business Support



DEB SANTY
SBIR/STTR Specialist

IPB Center Directors

Research Centers at UConn Tech Park are led by Center Directors who report directly into their respective departments.



PAMIR ALPAY
UTAS Center for
Advanced Materials
Department of Materials
Science and Engineering



**EMMANOUIL
ANAGNOSTOU**
Eversource Energy Center
Department of Civil and
Environmental Engineering



GEORGE BOLLAS
UTC Institute for Advanced
Systems Engineering
Dept. of Chemical and
Biomolecular Engineering



**HADI
BOZORGMANESH**
Enterprise Solution Center
School of Engineering



JOHN CHANDY
Connecticut Cybersecurity Center
(CHEST, Comcast)
Department of Electrical and
Computer Engineering



RAINER HEBERT
Pratt & Whitney Additive
Manufacturing Center
Department of Materials Science and
Engineering



JEONGHO KIM
Connecticut Manufacturing
Simulation Center
Department of Civil and Environmen-
tal Engineering



JOSEPH LUCIANI
Proof of Concept Center (POCC)
Quiet Corner Innovation Cluster
(QCIC)



JEFF MCCUTCHEON
Fraunhofer USA Center for Energy
Innovation CEI
Department of Chemical and Biomo-
lecular Engineering



LAURENT MICHEL
Connecticut Cybersecurity Center
(Comcast, Synchrony)
Department of Computer Science
and Engineering



STEVE SUIB
UConn Thermo Fisher Scientific
Center for Advanced Microscopy and
Materials Analysis
Department of Chemistry



SINA SHAHBAZMOHAMADI
Reverse Engineering Fabrication
Inspection & Non-Destructive
Evaluation (REFINE)
Department of Biomedical Engineering

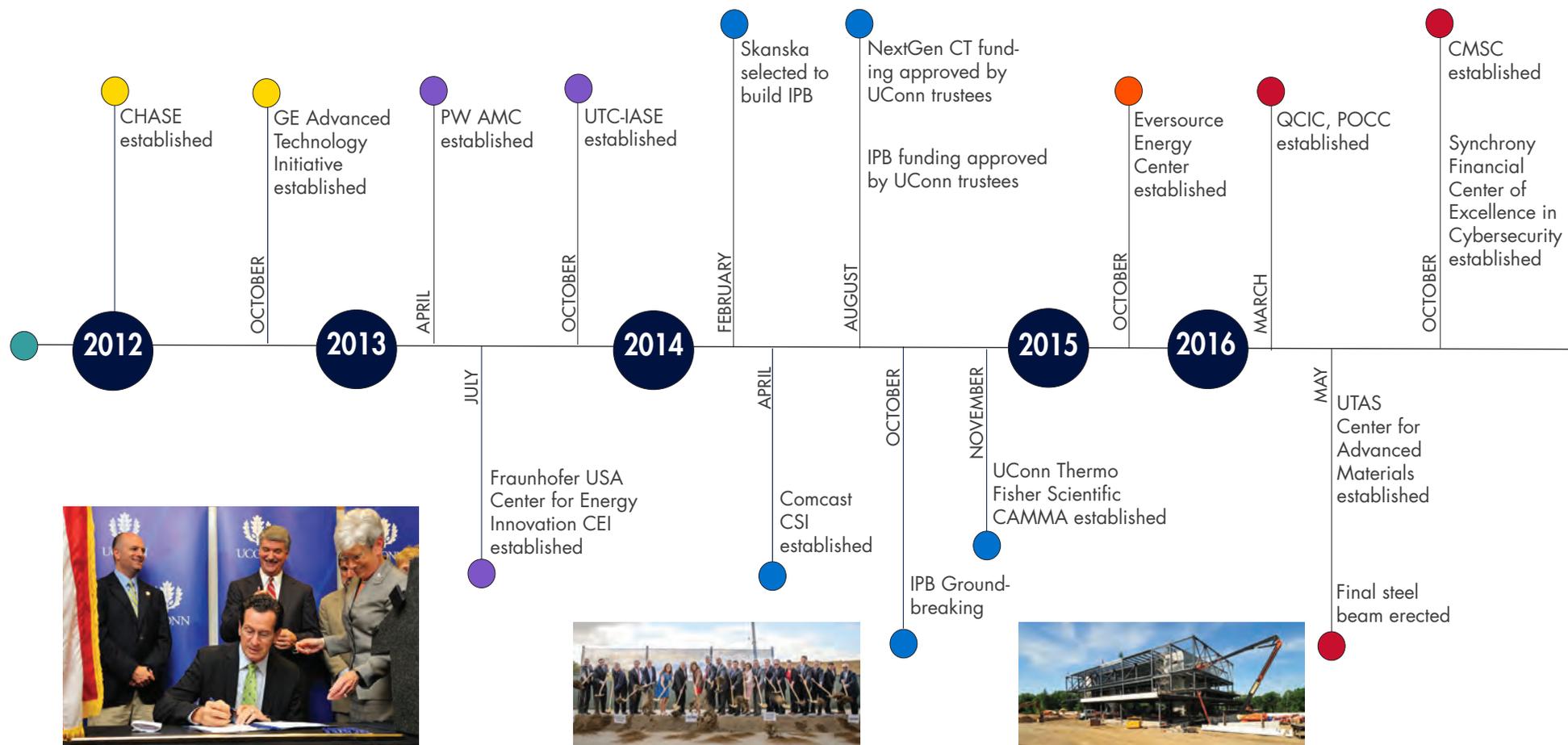


MEI WEI
GE Advanced Technology Initiative
Department of Materials Science and
Engineering

Timeline

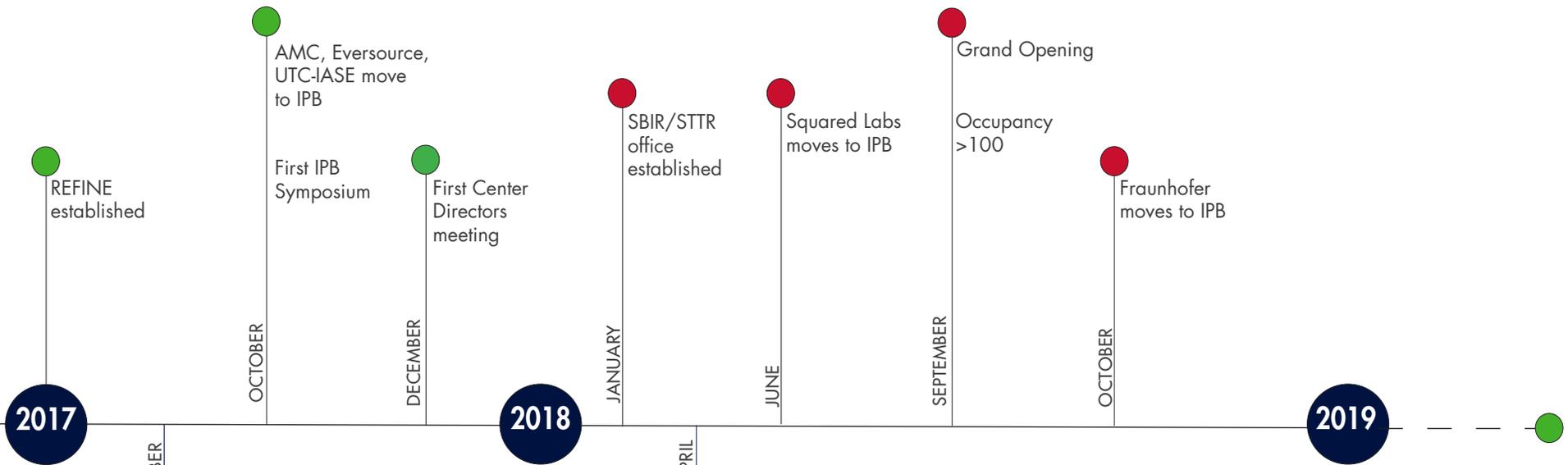
A tech park and an industry focused research and development center at UConn has been in the works for some time as a strategy critical to advancing technologies and creating long term economic growth in the state of Connecticut. Here is a brief summary of key milestones reached to achieve this remarkable goal.

In 2012, efforts toward establishing a new facility gained greater momentum with a state investment of \$172M. This substantial support included a \$100M state of the art research building to be located on UConn's North Campus, \$40M for high tech equipment and \$32M for infrastructure. In 2014, the UConn Board of Trustees approved funding for the facility, triggering the next steps in planning, and groundbreaking occurred later that year.



Since October 20, 2017, industry research centers from the School of Engineering and Institute of Materials Science have moved to the IPB and are now fully relocated. These world class industry partners have invested more than \$80M to support research at the new UConn Tech Park facility.

Today UConn Tech Park is open and ready for business, with exceptional faculty and students, and high tech equipment including electron microscopes, materials testing equipment, 3D printers, and more. We are very excited to be pursuing a mission of innovation, partnership, and world class research.



Research Centers

The UConn Tech Park Executive Director and staff work in close partnership with the Tech Park Center Directors and with the deans of the applicable schools and colleges to maintain and grow industry collaborations, which are viewed by UConn as strategic partnerships. To date, ten industry partners have invested more than \$80 million for research at Tech Park.

1ST FLOOR

UCONN THERMO FISHER SCIENTIFIC CENTER FOR ADVANCED MICROSCOPY AND MATERIALS ANALYSIS (CAMMA)

ThermoFisher
SCIENTIFIC

is one of the world's foremost facilities for electron microscopy. Its nine microscopy instruments include the Titan Themis for sub-angstrom analysis of materials and the Talos TEM for simultaneous quantitative energy dispersive spectroscopy and analysis of the chemical composition of materials. CAMMA equipment will be available for collaborative research with industry partners, including applications for clean energy materials and the testing of additively-manufactured components such as those found in medical devices and polymeric materials for biomedical applications.

REVERSE ENGINEERING FABRICATION INSPECTION AND NON-DESTRUCTIVE EVALUATION (REFINE)

Refine

lab houses state-of-the-art light, X-ray, electron and ion microscopes. The lab focuses on "correlative microscopy" where information from multiple imaging modalities can be integrated in order to reach a much deeper understanding of imaged samples. REFINE Lab's instruments can "talk" to each other enabling researchers to gain a multi-dimensional, multi-resolution and multi-scale perspective about the studied sample. REFINE is working closely with industries in areas of electronics and hardware security, biomedical devices, batteries and energy storage, aerospace, advanced coatings, and additive manufacturing.





UTC Aerospace Systems

UTC AEROSPACE SYSTEMS (UTAS) CENTER FOR ADVANCED MATERIALS

offers educational funding to graduate and undergraduate students as well as post-doctoral fellows. It provides an opportunity for firsthand interactions with an industrial partner whose focus is on advanced aerospace and defense products. The Center has three main research thrusts: (1) design and development of custom aerospace alloys that lend themselves to additive manufacturing using computational and experimental tools, (2) processing of high temperature ceramic composites for extreme environments, and (3) quasicrystal-strengthened alloys for structural applications.



PRATT & WHITNEY ADDITIVE MANUFACTURING CENTER (PW AMC)

is a premier facility for metal additive manufacturing. The range of equipment available includes electron beam melting and laser sintering technologies and a suite of thermophysical measurement instruments.

PW AMC is focused on the underlying physics of additive manufacturing with emphasis on rapid solidification, powder spreading, and metal-atmosphere interactions. Experiments as well as ab-initio calculations are used to develop new insight into the additive manufacturing process. AMC furthermore addressed control theory with the goal to improve current machine technologies and supports the generation of data for manufacturing simulations.



Fraunhofer USA

FRAUNHOFER USA CENTER FOR ENERGY INNOVATION CEI

is dedicated to applied research in membrane technology.

The CEI is part of Fraunhofer USA, Inc., a 501 (c) (3) not-for-profit organization that aims to close the innovation gap from the lab to the market and develop and validate technologies for industrial innovation in the United States. The CEI's focus on membrane technology allows it to provide R&D services across numerous industrial sectors.

Research Centers

2NDFLOOR



UTC INSTITUTE FOR ADVANCED SYSTEMS ENGINEERING (UTC-IASE)

produces, disseminates, and commercializes new science and technology in the field of cyber-physical systems engineering through transformative research, education, and workforce development. The Institute serves as a hub for world-class research, project-based learning by globally-distributed teams of students, and industrial outreach activities focused on model-based systems engineering (MBSE) of complex systems that are built from and are dependent on the synergy of computational and physical components. Research applications are broad, and include, eg, smart buildings and cities, aerospace systems, manufacturing and energy industries, robotics, and cybersecurity.

EVERSOURCE

EVERSOURCE ENERGY CENTER

leads the utility industry in innovating and developing new technologies and science-based solutions to ensure the delivery of reliable power and enhanced risk management associated with cyber and physical infrastructure security. Through research and teaching, the center is advancing the next generation of storm outage forecasting, best practices for healthy and storm-resistant forest design, and new technologies to proactively pinpoint electric grid operational efficiencies and storm resiliency improvements.



CONNECTICUT CYBERSECURITY CENTER (C3)

and its member centers, Comcast Center for Security Innovation (CSI), Center for Hardware and Embedded Systems Security and Trust (CHEST), Synchrony Financial Center of Excellence in Cybersecurity and Voter (housed on main campus) carry out research in cybersecurity and cryptography. Their mission is to expand theoretical models and the boundary of cybersecurity technology to enable organizations to protect and safe keep the digital assets under their purview as well as enable safe, private, reliable and trustworthy computing in adversarial settings.

- **CHEST** is an industry-supported consortium tackling research issues in hardware security.
- **CSI** focuses on networking products deployed in businesses and homes.
- **Synchrony Financial Center of Excellence in Cybersecurity** addresses threats to financial organizations.

ENTERPRISE SOLUTION CENTER (ESC)

is an innovation hub that connects small and medium manufacturing enterprises (SMMs) to science and engineering resources at UConn and to major original equipment manufacturers (OEMs).

- **Proof of Concept Center (POCC)** offers state-of-the-art prototyping and fabrication equipment that facilitate new product development for a wide range of industries.
- **Quiet Corner Innovation Cluster (QCIC)** partners with SMMs to promote business growth through innovation, enhanced R&D, and updated business capabilities.
- **Connecticut Manufacturing Simulation Center (CMSC)** provides SMMs with affordable technical assistance for computer-based design, finite element modeling and simulation, testing, and validation, with capabilities in modeling a variety of manufacturing processes, including machining, forming, forging, and casting.



3RD FLOOR

Instrumentation

Advanced Characterization Lab

First Floor, South Wing



The Advanced Characterization Lab (ACL) covers 11,200 square feet and is one of the foremost electron microscopy facilities in the United States, capable of analyzing materials on several scales. It houses state of the art equipment including correlative multiscale workflows with X-ray, optical, ion and electron microscopy, with applications in electronics and hardware security, nanotechnology, clean energy, biomedicine, and more.

The labs feature:

- Perfect vibration isolation
- Perfect EMI isolation
- Acoustic noise mitigating wall panels
- Regular exhaust and corrosive exhaust in equipment chase
- Secure key card access doors
- 60-inch monitor screens

UCONN THERMO FISHER SCIENTIFIC CAMMA

- Titan Themis ACEM
- Talos 200 STEM
- Verios 460L SEM
- Teneo SEM
- Helios PFIB Dual Beam
- Helios 460F1 Dual Beam
- Aspex Explorer VP
- Tecnai T-12 TEM
- Strata 200S Dual Beam

REFINE

- Zeiss Xradia Versa 520
- Zeiss Xradia MicroCT 400
- Zeiss Crossbeam 340 w/Laser
- Zeiss Orion Nanofab
- Zeiss Smartproof 5
- Zeiss Smartzoom 5
- Micrion Vectra 986+

X-RAY

- Rigaku SmartLab X-ray Diffraction System
- Rigaku ZSX Primus IV XRF Spectrometer

Xradia MicroCT 400



Smartproof



Smartzoom 5



Crossbeam 340 w/Laser

Orion Nanofab

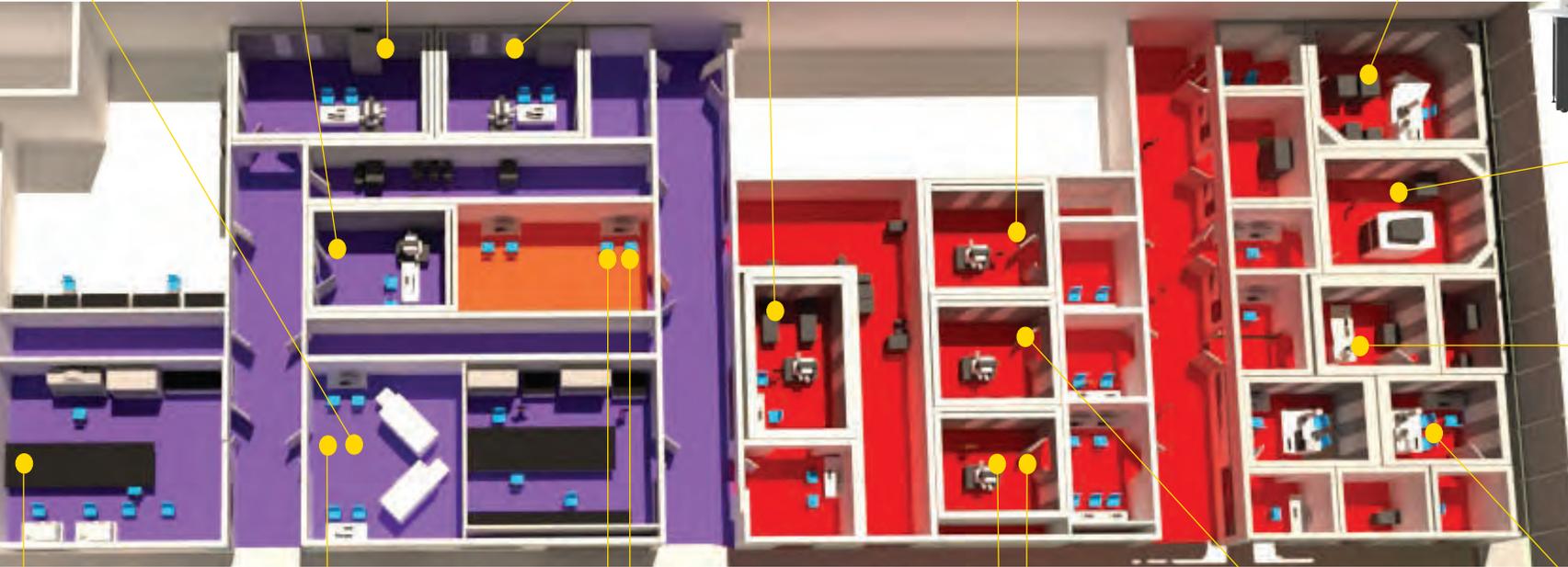
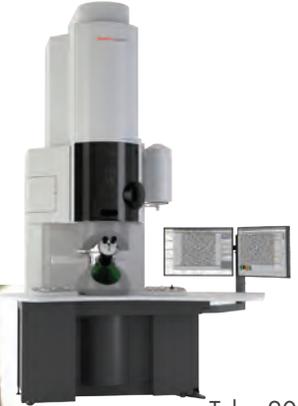
Helios 460F1 Dual Beam

Titan Themis ACEM



Vectra 986+

Strata 200S Dual Beam



Talos 200 STEM



Tecnai T-12 TEM



Teneo SEM



Xradia Versa 520

SmartLab X-ray Diffraction System

Verios 460L SEM

Aspex Explorer VP

Helios PFIB Dual Beam



ZSX Primus IV XRF Spectrometer



Instrumentation

Additive Manufacturing Center

First Floor, North Wing



The Additive Manufacturing Center (AMC) features a high-bay lab shell space comprising 8,500 square feet with over 30-foot ceilings and utilities for a fully furnished wet/dry lab. Of this, 5,600 square feet is available for future tenants. Physical lab areas bordering the high-bay cover 4,200 square feet, and include sinks, vent hoods, and bench top experimental work space, with access to house and processed nitrogen, house vacuum, compressed air, deionized water, processed chilled water and 110/220/440 V power supply. The full laboratory area is equipped with distributed argon gas flow. Each laboratory has individual gas detection sensors and digital read out panels directly connected to the university's fire department.

High-bay flexible space for tenant wet/dry labs

AMC EQUIPMENT

- TA Instruments EM 1600 (Laser Flash)
- TA Instruments EM 2800 (Laser Flash)
- TA Instruments ODP 868 Optical Dilatometry Platform
- MRF Arc Melter
- Gleeble 3500 (Simulation System)
- Retsch Camsizer XT (Analyzer)
- LECO ONH 836 (Oxygen-Nitrogen-Hydrogen Analyzer)
- LECO CS 844 (Carbon Sulfur Analyzer)
- Arcam A2X
- EOS M270
- 3DSystems ProX300 (ProX 3D Printer)
- Agie Charmilles Wire EDM
- Anton Paar Furnace Rheometer System 1800
- Agilent ICP 7700
- Netzsch Pegasus DSC

Anton Paar Furnace Rheometer System 1800
(Image courtesy of Anton Paar)



MRF Arc Melter



Gleeble 3500 (Welding Simulation System)



Wire EDM



Arcam A2X



Camsizer XT (Analyzer)



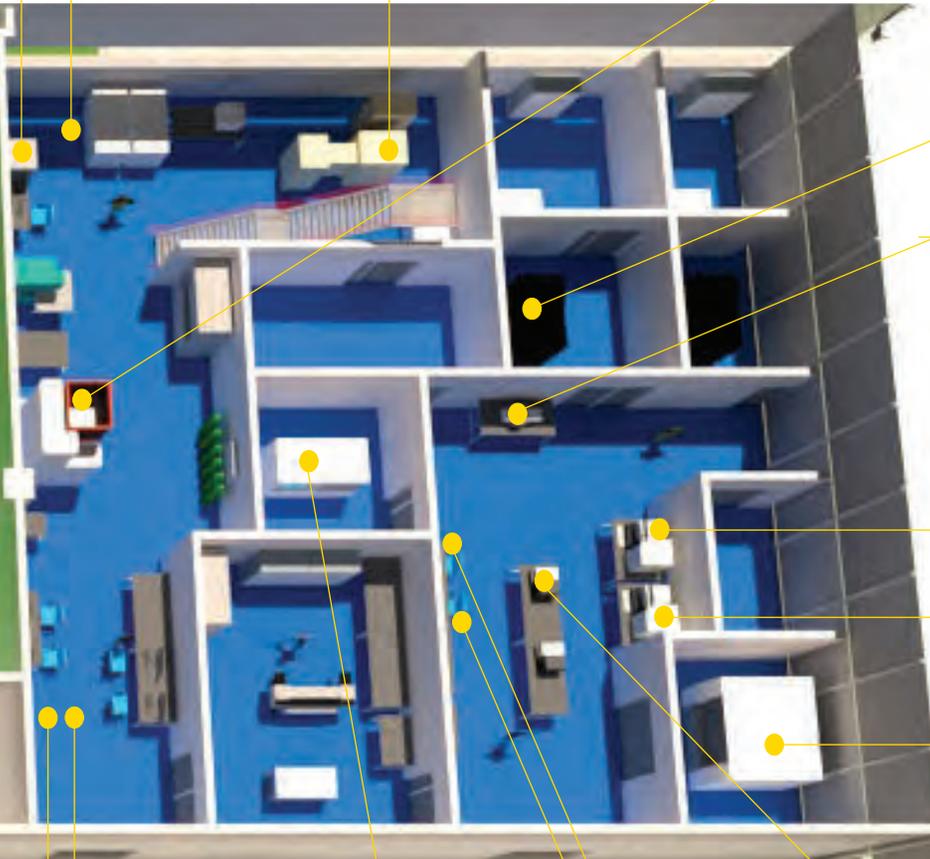
LECO ONH 836
(Oxygen-Nitrogen-Hydrogen Analyzer)

LECO CS 844 (Carbon Sulfur Analyzer)

3DSystems ProX300 (ProX 3D Printer)



Fraunhofer
(Fall 2018)



TA Instruments EM 1600 (Laser Flash)



TA Instruments EM 2800
(Laser Flash)

EOS M270



Agilent IPC 770

Pegasus DSC

ODP 868



Instrumentation

Proof of Concept Center & Connecticut Manufacturing Simulation Center

3rd Floor



ADDITIVE MANUFACTURING EQUIPMENT

- Stratasys Connex350
- Stratasys Design F370
- Formlabs Form 2

CUTTING

- Universal Laser Systems ILS 12.150D
- OMAX Protomax Waterjet

The Proof of Concept Center comprises 1,320 square feet of wet/dry lab space and houses state of the art prototyping and fabrication equipment that facilitate development of fully functional prototypes for a wide range of industries.

The Connecticut Manufacturing Simulation Center comprises 1700 square feet of lab space and houses 12 Dell Precision Workstations with 10-core Xeon processors/64GB of ram with priority access to 14 nodes, i.e. 504 cores, on UConn's high performance computing (HPC) cluster. Modeling and Simulation software suites include ANSYS, Solidworks, and ABAQUS.

The third floor of Tech Park features an additional 2,700 square feet of flexible wet/dry lab shell space currently available for future tenants, pre-fitted to provide access to compressed air, water, an exhaust system, and 220/480 V electrical busbar.

FUTURE EQUIPMENT

- CNC Machining Center
- CNC Lathe
- 3D Scanner and portable CMM Probe

CMSC Computer Lab

CNC Machine Center

Universal Laser Systems ILS 12.150D



Stratasys Connex350



OMAX Protomax Waterjet



Formlabs Form 2

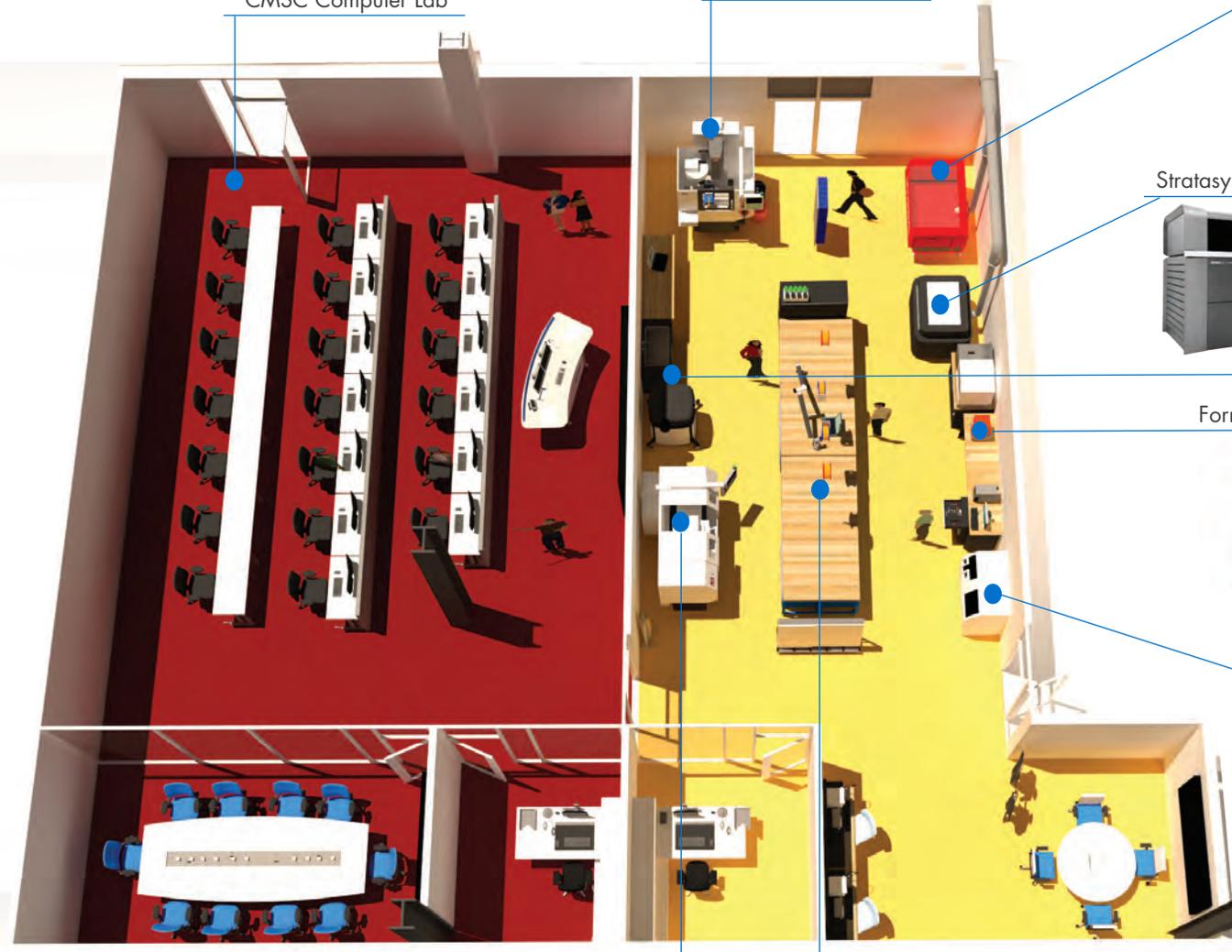


Stratasys Design F370



3D Scanner and portable CMM Probe

CNC Lathe



Outreach

As a land grant university, UConn has a responsibility to serve the citizens of the state and support economic growth for Connecticut businesses of all sizes. The Tech Park Executive Director, faculty, and staff are fully committed to this promise, and continually strive to foster an atmosphere of inventive and creative thinking, establishing new business collaborations and strengthening current research partner relationships with any businesses, from fledgling startups to global leaders, whose success will benefit the citizens of the state of Connecticut.



Senior Associate Dean Michael Accorsi
School of Engineering



UConn Engineering brings a wide range of expertise and practical experience that provide a solid foundation for effective partnerships with industry. We offer expertise in many important areas including modeling and simulation, systems engineering, cybersecurity, manufacturing, materials characterization, and robotics. We frequently work with our industry partners to identify and pursue federal opportunities and regularly engage with federal program managers to promote our capabilities. We also leverage our strong relationships with our congressional delegation to further advance Connecticut's interests in Washington DC.

Together with our students and external collaborators, our faculty are working to transition their innovative ideas to startup companies. Our startups have an excellent track record in securing SBIR funding and offer another way to partner with industry to promote economic growth.

I look forward to continuing to work with industrial companies to develop exciting projects that advance our state's science and technology capabilities, particularly in manufacturing.



Since its opening in fall 2017, Tech Park has developed into an active, vibrant community. In any given week we welcome numerous guests from regional to international organizations interested in its advanced capabilities and sophisticated resources, including large and small businesses, entrepreneurs and academicians. Tech Park has also had opportunities to demonstrate our capabilities and highlight our achievements to Connecticut legislators, Connecticut congressional delegations, and government funding agencies. There is a sense of excitement from guests as they meet with faculty, tour our new high tech facility, and begin to recognize the remarkable opportunities Tech Park provides.

While Tech Park has high visibility in the scientific research community, as a new building with a modern state of the art design, it attracts guests from many other sectors as well. Over the past year, our facility has become an integral part of the university community, drawing interest from across UConn departments, schools and divisions. We regularly host a wide range of events including workshops, symposia, student poster sessions, departmental retreats, and more. In the spirit of cross disciplinary collaborations, we are also very excited to be partnering with the School of Fine Arts (SFA), providing unique opportunities for SFA students to develop their skills and creativity in a high tech research environment.

The IPB's architectural features have even drawn the attention of the Mansfield Fire Department, who used a section of the building to hold rigorous training for certified search and rescue workers from across the state.

TECH PARK VISITORS TO DATE

INDUSTRY

- » Acme Wire Products Co, Inc.
- » AddUp Solutions
- » Advanced Manufacturing LLC
- » Advanced Robot Solutions
- » Aero Gear Inc.
- » Altek Electronics Inc
- » Amastan Technologies
- » Amazon Lab 126
- » Anton Paar
- » Associated Spring
- » AVANGRID
- » Bead Industries
- » Boehringer Ingelheim Inc
- » Boeing
- » Brainstorm
- » Cabot Corporation
- » Cadenza Innovation
- » Carlyle Johnson Machine Co, LLC
- » CMT Materials
- » CohnReznick LLP
- » Connecticut Center for Advanced Technology, Inc. (CCAT)
- » Connecticut Innovations
- » Convergent Mission Solutions
- » Crimson Rook LLC
- » Crunch Technologies
- » Dante Solutions, Inc
- » Disruptive
- » Dynamic Systems Inc. (Gleeble)
- » ELDOR Group
- » Enviro Power LLC
- » General Dynamics Electric Boat
- » Gerber Technology
- » Giner, Inc
- » GKN Aerospace
- » Godman Energy
- » H2Sonics
- » Hampford Research
- » Health eSense
- » Imcorp
- » InCHIP
- » Kurimoto, LTD (Japan)
- » KX Technologies LLC
- » Line Master Switch
- » Lite Sheet
- » Loos & Co, Inc.
- » M Cubed
- » Macroscopic Solutions
- » Marmon
- » Medigate
- » Microsemi
- » Mistras Group
- » Moore Engineering
- » MSC Software /ACMT
- » N&N Manufacturing
- » NERAC
- » NGK-NTK
- » Nustream
- » NY & New England SCORE
- » OutSecure
- » Physical Electronics
- » Precision Combustion, Inc.
- » Qualitech Systems, Inc. (QSI)
- » Queralt
- » QUEST
- » Revision Military
- » rite Solutions
- » Schwerdtle
- » Sikorsky Lockheed
- » Solar Turbines
- » Sonalysts
- » Stanadyne LLC
- » Stanley Black and Decker
- » Synectic
- » TechStars
- » Thayer Mahan
- » The Carlyle Johnson Machine Company (CJMC)
- » Torrecom Partners, LP
- » The Lighting Quotient
- » Travelers
- » Unilever
- » Weber Metals
- » Wepco Plastics Inc.
- » Whitcraft, LLC.

ACADEMIA

- » Ashesi University, Ghana
- » Clemson University
- » ETH Zurich
- » Indian Higher Education Knowledge Delegation
- » Purdue University
- » Southern Connecticut State University
- » Technion – Israel Institute of Technology
- » Tokyo University of Science
- » University of Maryland
- » University of Rhode Island
- » University of Toulouse
- » Worcester Polytechnic Institute
- » Yale Entrepreneurial Institute
- » Yale Office of Cooperative Research & YEI Innovation Fund

GOVERNMENT AGENCIES AND LEGISLATORS

- » US Congressman Joe Courtney
- » US Senator Chris Murphy
- » US Senator Richard Blumenthal Staff
- » CT Senator Osten
- » Air Force Research Lab
- » Department of Navy SBIR STTR
- » NAVSEA Warfare Centers
- » NAVAIR
- » Army Research Labs
- » US Small Business Administration
- » German Ministry
- » CT State Delegation

OTHER

- » Connecticut Business & Industry Association (CBIA)
- » Connecticut Economic Resource Center (CERC)
- » CONNSTEP
- » Hartford Business Journal
- » Women's Business Development Council

Support for Small Business

Conn Tech Park is committed to providing technological support and the necessary instrumentation to help small and medium size businesses. We also offer guidance on gaining government funding that can help small businesses in developing innovative products and services, in feasibility analyses, in proof of concept studies, and commercialization.

SBIR/STTR GRANT PARTNERSHIP WORKSHOPS

Also known as America's Seed Fund, SBIR/STTR programs are one of the largest sources of early-stage capital for technology commercialization in the United States. These federal programs provide critical funding for academic/business partnerships working toward product development.

In collaboration with the Office of the Vice President for Research (OVPR), Tech Park has supported two workshops designed to educate small businesses and faculty on SBIR/STTR programs. The objective of these workshops was to establish teams composed of UConn faculty and business partners and guide them in applying for and winning DoD/Navy SBIR/STTR grants/contracts.

The objective of these workshops was to establish "dream teams" composed of UConn faculty and business partners that would then apply for and win DoD/Navy SBIR/STTR grants/contracts. Future SBIR/STTR workshops will include a focus on the NSF and DoE.



UConn's horsepower has provided novel ways for us to critically assess how our product responds to the needs of the marketplace.

JOHN HOFFERT
Enviropower Technologies



UConn validated the value of our product and made us more confident in it.

DAVID SULLIVAN
H2Sonics, LLC

Workshop I – March 20, 2018

Speakers representing Navy SBIR/STTR, UConn Tech Park, and the OVPR communicated a collective focus on establishing innovative “dream teams” that qualify for DoD/ Navy SBIR funding. The 86 attendees included 36 UConn faculty, three UConn staff, 45 industry representatives, and five individuals from federal and state government.

GOALS

- Educate small businesses and faculty on the SBIR funding program
- Identify common technology and research interests of small businesses and UConn faculty
- Provide networking opportunity toward developing SBIR/STTR partnerships and submissions
- Establish UConn/industry partnerships, or “Dream Teams,” to attend a second workshop

SBIR/STTR DREAM TEAM

- SBIR/STTR Dream Teams are innovative partnerships that lead research to commercialization and job creation
- Dream Teams consist of small businesses, UConn faculty and students, and large global businesses that use SBIR funding, topics, and technical points of contact to unite them for a game changing purpose
- Dream Teams select from a wide range of SBIR/STTR topics and have access to UConn Tech Park as an essential resource

Workshop II – May 1, 2018

Vital Strategies, a technology innovation firm with expertise in SBIR/STTR applications, conducted the second workshop. Vital Strategies met with ten Dream Teams over the course of the day, coaching and providing comprehensive guidance on applying for and winning SBIR/STTR funding. Twenty-five individuals attended, including seven UConn faculty, three UConn staff, and 15 industry representatives.

GOALS

- Align ten UConn/industry Dream Teams (pre-selected from Workshop I) with their SBIR/STTR topic
- Provide guidance to individual Dream Teams on strategically writing and applying for a winning SBIR/STTR grant/contract
- Educate Dream Teams on building relationships with agency program managers in Washington, DC and prime defense contractors
- Provide foundation and tools for Dream Teams to prepare a joint UConn/small business SBIR proposal to be submitted by June 2018



UConn provides my business with an advanced level of expertise in research that I need to advance my product.

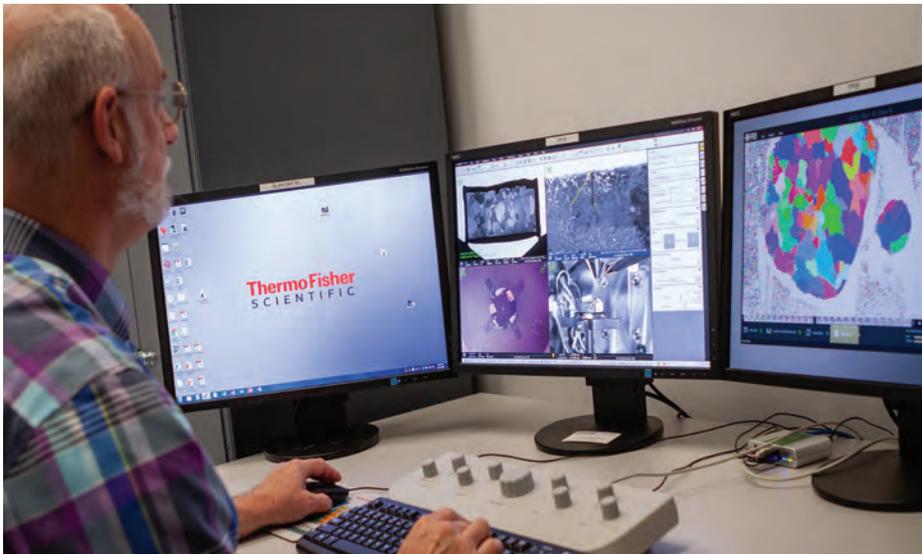
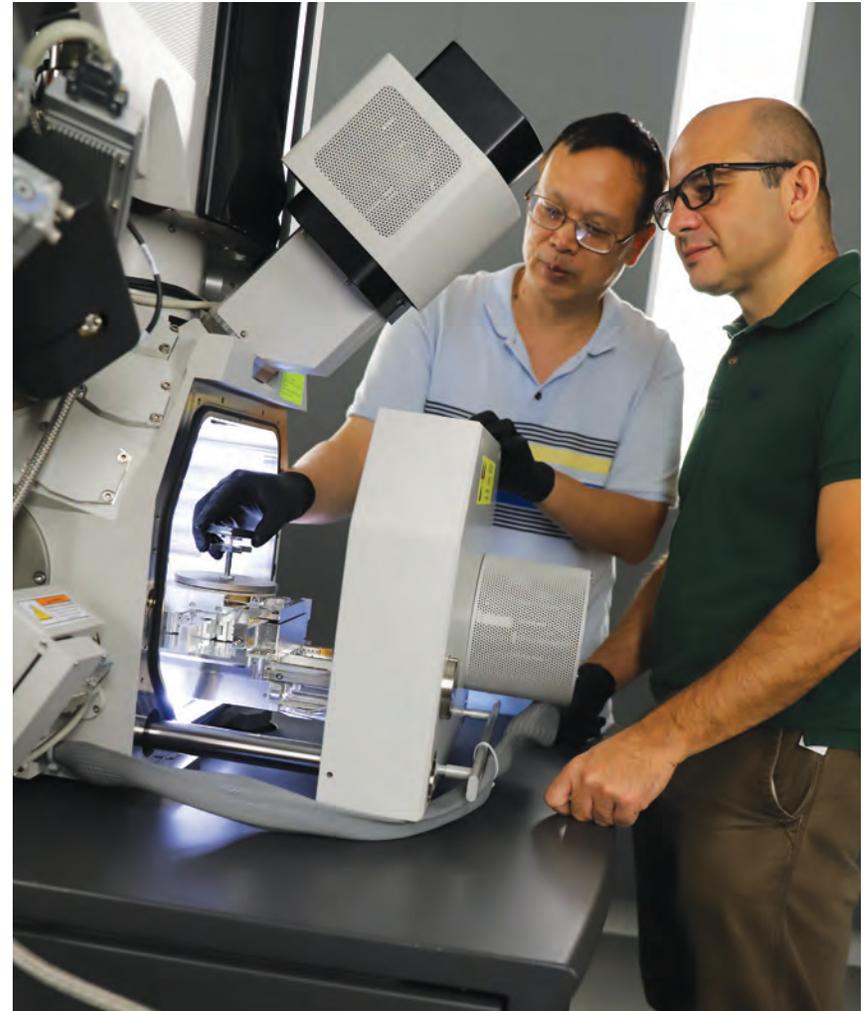
WADE MOORE
Moore Engineering

“...the speakers [at the first workshop] were a perfect fit for the startup firms attending as the speakers provided most of the information necessary to allow the startups to consider to take (or not) the next steps required for the filing of STTRs and SBIRs.”

LEE PIERHAL
CEO Venture Capital, M&A,
Startup Consulting

“The funding that the government provides through the SBIR program is critical to moving new ideas forward and has a history of funding many life changing technologies.”

CLAIRE LEONARDI
CEO Health eSense, former CEO
of Connecticut Innovations



REALIZATION

EDITOR

Melanie Noble, Tech Park

GRAPHICS

Joseph Luciani, Tech Park

DESIGN

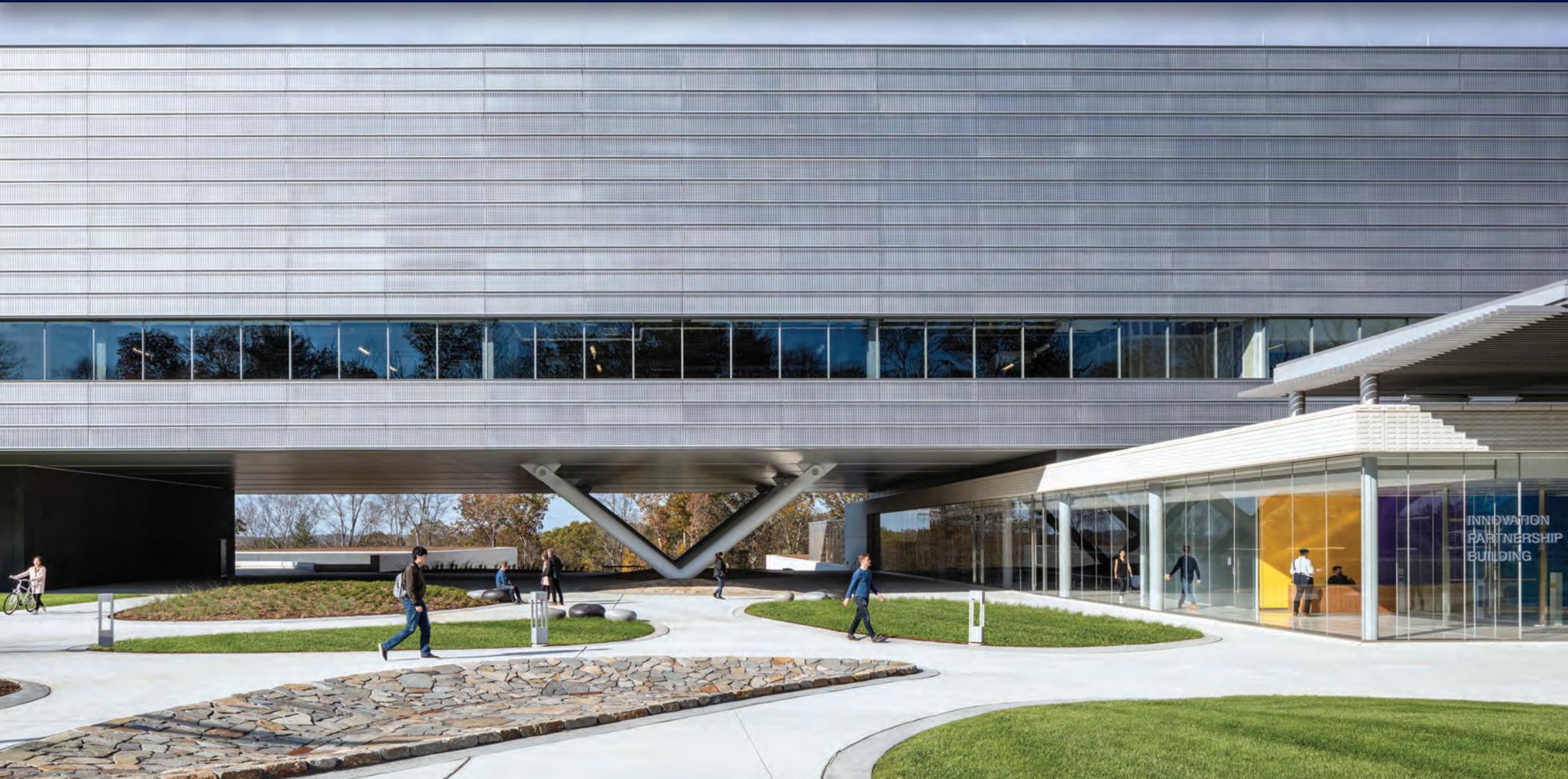
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INNOVATION. COLLABORATION. INSPIRING GREAT IDEAS.