

...the College of Engineering to help lead such collaborative work," said Jean-Pierre Bardet, dean of the College of Engineering. "We expect the REMADE Institute to have a significant impact on U.S. manufacturing and implementing cleaner production methods, clean technologies and better reuse of materials. It's another way that the integration of ideas, approaches and technologies can solve complex problems.

and we're proud to be collaborating with other universities and research institutions, as well as with industry, to explore these innovations. This cutting-edge research and collaborative civic engagement will benefit both the economy and the environment, and it is a priority for both the College of Engineering and the University of Miami."

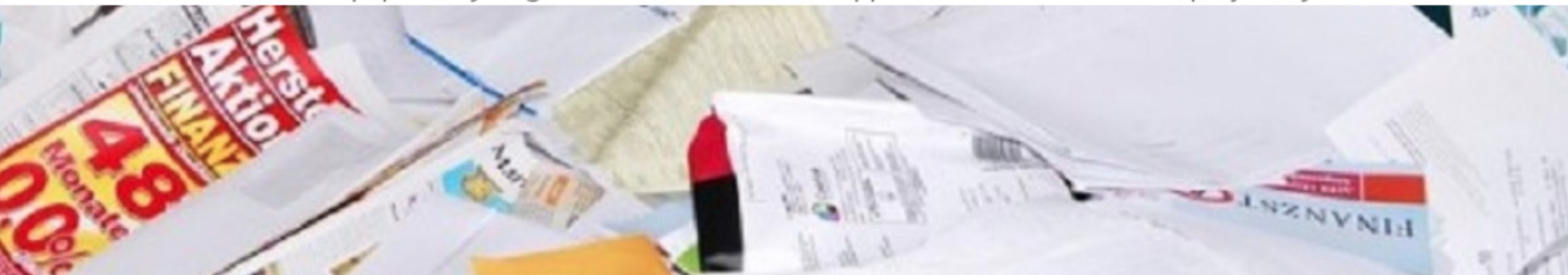
The SMIA, which the College joined in September, is a national coalition of leading universities and companies, led by the Rochester Institute of Technology. Its goal is to develop new tools, technologies and approaches to using fewer material resources and optimizing those resources' use throughout the product lifecycle. It won a competitive process with the Department of Energy to lead REMADE. As REMADE's lead organization, SMIA will leverage up to \$70 million in federal funding over five years, which will be matched by \$70 million in private cost-share commitments from industry and other consortium members, including its 85 partners.

Dr. Nurcin Celik, associate professor in the CoE's Department of Industrial Engineering, helps Dean Bardet lead the research efforts of this initiative at the CoE. As a partner of the REMADE Institute, CoE will provide personnel and technical expertise, as well as use of its 3D Printing Collaborative Laboratory and other research space.

"This project will play an important role in transforming the marketplace and reducing lifecycle energy consumption and carbon emissions by leveraging and focusing manufacturing technologies on recycling, reuse and remanufacturing of materials," continued Bardet. "This complements the University of Miami's mission, which includes creating knowledge and serving our community.

College Contributes Research on Paper Recycling

Dr. Celik's research on paper recycling also is selected to be supported as a foundational project by the Institute to



COE, Industrial, Research

Improving U.S. Manufacturing Competitiveness

U.S. Department of Energy selects group to direct new clean energy manufacturing initiative

The College of Engineering (CoE) and other members of the Sustainable Manufacturing Innovation Alliance Inc. (SMIA) will lead the U.S. Department of Energy's new Reducing Embodied-energy and Decreasing Emissions (REMADE) Institute as it forges clean energy initiatives deemed critical in keeping U.S. manufacturing competitive.

Part of the Department of Energy's Manufacturing USA initiative, REMADE will focus on driving down the cost of technologies essential to reuse, recycle and remanufacture materials such as metals, fibers, polymers and electronic waste. It aims to achieve a 50% improvement in overall energy efficiency in materials manufacturing by 2027. These efficiency measures could save billions of dollars in energy costs and improve U.S. economic competitiveness through innovative new manufacturing techniques and small business opportunities.

To accomplish its goals, REMADE will work to bridge the gap between basic research and product development in key technology areas that are critical to U.S. manufacturing competitiveness. The CoE will work with institutions including the Rochester Institute of Technology, Idaho National Lab, Argonne National Lab, University of Illinois and other leading universities, as well as national labs, industrial partners and the U.S. Department of Energy. In all, more than 100 universities, companies, national labs, industry trade associations and foundations, and state governments, are engaged in this tremendous effort.

"It is more important than ever to bridge the divide between academics and industry, and the REMADE Institute is another opportunity for the College of Engineering to help lead such collaborative work," said Jean-Pierre Bardet, dean of the University of Miami College of Engineering. "We expect the REMADE Institute to have a significant impact on U.S. manufacturing by exploring and implementing cleaner production methods, clean technologies and better reuse of materials. It's another way that the integration of ideas, approaches and technologies can solve complex problems, and we're proud to be collaborating with other universities and research institutions, as well as with industry, to explore these innovations. This cutting-edge research and collaborative civic engagement will benefit both the economy and the environment, and it is a priority for both the College of Engineering and the University of Miami."

The SMIA, which the College joined in September, is a national coalition of leading universities and companies, led by the Rochester Institute of Technology. Its goal is to develop new tools, technologies and approaches to using fewer material resources and optimizing those resources' use throughout the product lifecycle. It won a competitive process with the Department of Energy to lead REMADE. As REMADE's lead organization, SMIA will leverage up to \$70 million in federal funding over five years, which will be matched by \$70 million in private cost-share commitments from industry and other consortium members, including its 85 partners.

Dr. Nurcin Celik, associate professor in the CoE's Department of Industrial Engineering, helps Dean Bardet lead the research efforts of this initiative at the CoE. As a partner of the REMADE Institute, CoE will provide personnel and technical expertise, as well as use of its 3D Printing Collaborative Laboratory and other research space.

"This project will play an important role in transforming the marketplace and reducing lifecycle energy consumption and carbon emissions by leveraging and focusing manufacturing technologies on recycling, reuse and remanufacturing of materials," continued Bardet. "This complements the University of Miami's mission, which includes creating knowledge and serving our community.

College Contributes Research on Paper Recycling

Dr. Celik's research on paper recycling also is selected to be supported as a foundational project by the Institute to kick-start its research efforts upon its establishment. Building on an ongoing project that is supported by the Hinkley Center of Florida and industrial partners, Celik is assessing the impact of single-stream recycling on recycled paper – specifically the issue of contamination in recovery facilities and paper mills. Many contaminants need to be removed when recycling paper, including glass pieces, metals and plastics of various sizes, density, shape, surface properties and strength. Different grades and types of paper (such as newspaper, corrugated materials, white paper, etc.) also must be separated. This is currently costlier when recycling is collected via single-stream recycling (also known as mixed waste recycling), and often leads to low-quality material.

Celik is seeking to both determine the effects of single-stream recycling on paper contamination in recovery facilities and determine how to decrease contamination and reduce paper recovery costs. Her preliminary assessments have found that certain existing technology and techniques can significantly reduce the energy required for sorting, screening and filtering paper from single-stream recycling – as well as save costs related to equipment repairs and landfill and increase the quality of recovered paper. REMADE hopes to apply Celik's findings across a variety of industries to achieve higher-quality, lower-cost recycled paper.

Economic Impact and Workforce Development

The CoE shares these five-year goals with the rest of the REMADE Institute:

- 5% to 10% improvement in manufacturing material efficiency by reducing manufacturing material waste
- 50% increase in remanufacturing applications
- 30% increase in efficiency of remanufacturing operations
- 30% increase in recycling efficiencies
- Targeted 50% increase in sales for the U.S. manufacturing industry, to \$21.5 billion
- Creation of a next-generation recycling and manufacturing workforce

The REMADE Institute will develop and implement an education and workforce development program to fill workforce gaps identified by its industry, government and academic partners and build the next generation of the recycling and remanufacturing workforce.

About Manufacturing USA

Manufacturing USA is a network of regional institutes, each with a specialized technology focus. Also known as the [National Network for Manufacturing Innovation \(NNMI\)](#), the consortium brings together academia, industry and federal partners with a goal to increase U.S. manufacturing competitiveness and promote a robust and sustainable national manufacturing research and development infrastructure. The institutes are tasked with bridging the gap between basic research and product development in key technology areas regarded as critical to U.S. manufacturing. Since its launch in 2012, Manufacturing USA has started 13 research institutes, with two more planned for later this year. To learn more about Manufacturing USA, go to [manufacturingusa.com](#).

Jan 11

- COE
- Electrical and Computer
- Giving Stories
- Graduation Story
- Industrial
- J and J Lab
- Mechanical and Aerospace
- Research
- Senior Design
- Students

Translate »

U.S. Mayors Challenge

The American Council of Engineering Companies of Florida Honors the University of Miami with Two Awards for Innovation Bridge

Alumnus Profile: Juan Pablo Ruiz, BSBE '13

CATEGORIES

- '92
- 1940s
- 1950s
- 1960s
- 1970s
- 1980s
- 1990s
- 2000s
- 2010s
- 70 for 70
- Alumni
- Alumni Stories
- Biomedical
- Civil, Architectural, Environmental
- COE
- Electrical and Computer
- Giving Stories
- Graduation Story
- Industrial
- J and J Lab
- Mechanical and Aerospace
- Research
- Senior Design
- Students

← Smart Energy for Smart Cities

→ Chinese University Honors New Partnership With Visit to University of Miami



COLLEGE OF ENGINEERING

1251 Memorial Drive
McArthur Engineering Building
Coral Gables, FL 33146
(305) 284-2404

CoE NETWORK

- ABOUT COE
- COE NEWS
- COE EVENTS
- APPLY
- ALUMNI ASSOCIATION

RESOURCES

- CANE LINK
- GRADESFIRST
- MYUM
- SITEMAP
- VIACOMP

Translate »