

Director of MIT.nano presents nanotechnology of the future at Tec



A **simple idea** can make people's **lives easier** and have an **impact on the world** at the same time, said [Vladimir Bulovic](#), Director of the central facility for nanoscale science and engineering at the Massachusetts Institute of Technology ([MIT.nano](#)).

Bulovic shared this during the presentation of [Tecnológico de Monterrey's Institute of Advanced Materials for Sustainable Manufacturing](#).

For instance, he said that **nanotechnology** can solve **everyday problems**, such as using every last drop of tomato sauce without leaving any residue. The same principle can be used to **improve the efficiency** of steam turbines in electric power plants.

This expert highlighted the importance of the relationship between academia and industry in taking technology out of the laboratory and **turning it into startups**.

Vladimir Bulovic habla acerca de los desarrollos de su equipo que ahora son empresas emergentes

Nanotechnology to prevent food waste

Bulovic, Director of MIT.nano, gave the speech **“The future of advanced materials for achieving sustainability.”**

As an example, he explained how to use the last drop of any product.

“The problem is static friction between the surfaces,” he said.

His colleagues Kripa Varanasi and Dave Smith have developed technology to prevent this. It consists of **coating the surface** (bottle) with an **extremely thin layer of molecules**.

This allows all the contents to slide out of the bottle without leaving any residue because the product never comes into contact with **container porosity**.

The technology is already being used in toothpaste and various thick liquids, such as honey and mayonnaise, to prevent food and other product waste.

However, this simple idea is also a solution to other large-scale problems, such as steam turbines in the power plants that generate our electricity, resulting in a **10 to 15% improvement in efficiency**.

This principle led to the incorporation of the [LiquiGlide](#) company.

<https://youtu.be/JNKXNiYY0Po>

Nanometers for smart eating

Surely you have been told to put green bananas in a paper bag so that they ripen faster.

“This works because the paper bag is made from wood pulp that emits ethylene.”

Ethylene is a nanometer-scale molecule that **controls the ripening time of fruits, vegetables, and plants**.

*“A colleague found a way to detect the presence of this hormone, which means we can now know **precisely when they will start to ripen**,”* he said.

In the case of large warehouses, this allows them to separate the fruit with that molecule in order to prevent the rest from ripening before being sold.

It can also help label those boxes that are ready to be sold to the public.

*“Detecting ethylene could change approximately **15% of vegetable and fruit produce** in the United States,”* he said.

What’s more, this technology can already be found on the Internet of Things, such as smartphones that tell you whether a shopping mall has **food that is suitable for consumption or not**.

There are also smart refrigerators that suggest which food we should consume according to how ripe it is.

This idea came from **Timothy M. Swager** at MIT and is now the basis of the company [C2 Sense](#).

Startups of the future come from inter-discipline

Bulovic spoke of other developments by his team that were born from the fusion of different disciplines.

He said that academics need to work alongside industry and transition from labs to spaces that can take incipient ideas and turn them into **startups**.

Bulovic also explained that *“MIT’s unique strength comes from the buildings on campus being connected.”*

“The world of tomorrow is about interdisciplinary interactions,” he said.

And he celebrated the creation of the **Institute of Advanced Materials for Sustainable Manufacturing**.

“I’m very pleased to see how the relationship between MIT and Tec de Monterrey has evolved. We do better research and publish better articles when we do it together,” he said.

Lastly, the Director of MIT.nano **advised students** to continue training, practicing, and immersing themselves in all areas so that when their time comes, they can have simple ideas that will revolutionize the world.

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Tec inaugurates materials institute

On August 19, [Tecnológico de Monterrey](#) presented the **Institute of Advanced Materials for Sustainable Manufacturing**, an initiative which will help it combine efforts to create more sustainable materials and processes.

*“This institute aims to develop technologies to be applied in different manufacturing industries and in innovative sustainable production processes, based on the development of **advanced materials**,”* said [David Garza](#), Rector and Executive President of **Tec de Monterrey**.

The institute has **4 units** focused on technology research for the creation of materials, their processing and development, and the creation and promotion of public policies in the same area.

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