European Academia Consortium “Track the Twin” puts quantum dot technology on the map

(25-03-2025) The Track the Twin consortium has been launched with the aim of accelerating the commercialisation of quantum dot (QD) devices.

Digital twin

The consortium's goal is to train 15 early-stage researchers to create a **‘digital twin’** of quantum dots that can predict modes of failure of quantum dots, enabling the production of stable QDs. Via an **online** AI-powered Materials Informatics platform, the Track the Twin consortium will broadcast data live to make the latest datasets and insights accessible to all members. The ultimate ambition is to integrate QD technology into everyday technologies, such as smartphone screens and energy-efficient photovoltaic windows for skyscrapers.

Quantum dots?

Quantum dots are nanocrystals with size-dependent properties, the most notable being size-dependent colours. The consortium aims to address these stability issues and develop durable quantum dot devices. This technology promises revolutionary applications for next-generation LEDs, lasers, and photovoltaic windows. A key challenge for the commercialisation of these devices is the stability of QDs.

Quantum dot technology has been awarded the **2023 Nobel Prize** and is an important part of materials science. Funded by the **Horizon Europe: Marie Skłodowska-Curie Actions program**, this project provides an exceptionally rich environment for the formation of a new generation of researchers in nanomaterials. The 15 young researchers will be trained in the latest experimental and computational methods and learn to collaborate with international partners. Through a mobility program, workshops, training in transferable skills, a summer school, and

the use of data exchange platforms, they will gain the knowledge and skills to become influential scientists and teachers.

For more information and updates on the consortium:

The consortium, comprising academic and industrial partners from Belgium, Germany, Italy, the Netherlands, Spain and Switzerland, is pooling an unprecedented amount of expertise and facilities to address these stability issues.