

AIXTRON participates in the European Pilot Line for Graphene and 2D Materials

European Commission funds 2D experimental pilot line as part of the Graphene Flagship / Integration of Graphene and Related 2D Materials into semiconductor platform

Herzogenrath/Germany, November 26, 2020 – As one of the world's leading suppliers of deposition equipment to the semiconductor industry, AIXTRON SE (FSE: AIXA) and AIXTRON Ltd (UK) are key partners of the 2D Experimental Pilot Line initiative of the Graphene Flagship. AIXTRON, as one of the tool manufacturers, will be responsible for developing the growth and transfer tools and processes necessary for **G**raphene and **R**elated **M**aterials (GRM).

In order to scale up and integrate graphene and 2D materials into semiconductor devices, AIXTRON will develop a **Metal Organic Chemical Vapor Deposition (MOCVD)** reactor for growth of these materials directly on to large substrates up to 300mm using its proprietary Close Coupled Showerhead® (CCS) technology. Direct growth allows industrial grade 2D materials and their associated heterostructures to be grown in situ for front-end applications.

For effective back-end integration, AIXTRON will investigate novel processes as well as develop an automated transfer system of 2D material structures on to device wafers. These platforms will provide key capabilities for the pilot line in realizing large scale integration of graphene and 2D materials into logic, memory, photonic and sensor devices.

2D-EPL covers the whole value chain

The European Commission is providing 20 million euros over 4 years for the **2D Experimental Pilot Line (2D-EPL)** which started on 1 October 2020. The project will establish an European ecosystem for prototype production of GRM based electronics, photonics and sensors.

The 2D-EPL, comprising 11 partners, covers the whole value chain, including equipment manufacturers, chemical and material providers and pilot processing lines. This will achieve the objective of providing prototyping services to not only the core Graphene Flagship project, but also to external companies, research centers and academics to rapidly drive the adoption of graphene and 2D materials in wafer-scale devices.

"We are very excited to be part of the 2D-EPL project. As a technology leader in semiconductor equipment for more than 30 years, our core expertise is to develop innovative solutions for complex material deposition – and deposition solutions for graphene and 2D materials are a key part of our product portfolio. These materials require very precise composition as well as thickness control down to one atomic layer, and we will leverage the technologies from our

For further information please contact

Corporate Communications

AIXTRON SE, Dornkaulstr. 2, 52134 Herzogenrath, Germany

PHONE +49 (2407) 9030-444 FAX +49 (2407) 9030-445

E-MAIL info@aixtron.com WEB www.aixtron.com

semiconductor production platforms to make this new class of materials a success for wafer scale devices," says Professor Dr. Michael Heuken, Vice President Corporate Research & Development of AIXTRON SE and Professor at RWTH Aachen University.

Further information about the 2D-EPL of the Graphene Flagship is available at <https://graphene-flagship.eu/pilot-line>.

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Contact persons

Guido Pickert
Vice President Investor Relations & Corporate Communications
PHONE +49 (2407) 9030-444
MOBILE +49 (173) 5407062
MAIL g.pickert@aixtron.com

Rita Syre
Senior PR Manager
PHONE +49 (2407) 9030-3665
MOBILE +49 (162) 269 3791
MAIL r.syre@aixtron.com

About AIXTRON

AIXTRON SE is a leading provider of deposition equipment to the semiconductor industry. The Company was founded in 1983 and is headquartered in Herzogenrath (near Aachen), Germany, with subsidiaries and sales offices in Asia, United States and in Europe. AIXTRON's technology solutions are used by a diverse range of customers worldwide to build advanced components for electronic and opto-electronic applications based on compound, or organic semiconductor materials. Such components are used in a broad range of innovative applications, technologies and industries. These include LED applications, display technologies, data storage, data transmission, energy management and conversion, communication, signaling and lighting as well as a range of other leading-edge technologies.

Our registered Trademarks: AIXACT®, AIXTRON®, Atomic Level SolutionS®, Close Coupled Showerhead®, CRIUS®, Gas Foil Rotation®, OVPD®, Planetary Reactor®, PVPD®, TriJet®

For further information on AIXTRON (FSE: AIXA, ISIN DE000A0WMPJ6; OTC: AIXNY) please visit our website at: www.aixtron.com

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