### Objective

The objective of the 3DAM project is to develop a new generation of metrology and characterization tools and methodologies enabling the development of the next semiconductor technology nodes. As nano-electronics technology is moving beyond the boundaries of (strained) silicon in planar or finFETs, new 3D device architectures and new materials bring major metrology and characterization challenges which cannot be met by pushing the present techniques to their limits.

3DAM will be a path-finding project which supports and complements several existing and future ECSEL pilot-line projects and is linked to the MASP area 7.1 (subsection More Moore). Innovative demonstrators and methodologies will be built and evaluated within the themes of metrology and characterization of 3D device architectures and new materials, across the full IC manufacturing cycle from Front to Back-End-Of-Line. 3D structural metrology and defect analysis techniques will be developed and correlated to address challenges around 3D CD, strain and crystal defects at the nm scale. 3D compositional analysis and electrical properties will be
investigated with special attention to interfaces, alloys and 2D materials. The project will develop new workflows combining different technologies for more reliable and faster results; fit for use in future semiconductor processes.

The consortium includes major European semiconductor equipment companies in the area of metrology and characterization. The link to future needs of the industry, as well as critical evaluation of concepts and demonstrators, is ensured by the participation of IMEC and LETI. The project will directly increase the competitiveness of the strong Europe-based semiconductor Equipment industry. Closely connected European IC manufacturers will benefit by accelerated R&D and process ramp-up. The project will generate technologies essential for future semiconductor processes and for the applications enabled by the new technology nodes.

Field of science

/natural sciences/physical sciences/electromagnetism and electronics/electrical conductivity/semiconductor

Programme(s)

Call for proposal

H2020-ECSEL-2015-1-RIA-two-stage

Funding Scheme

ECSEL-RIA - ECSEL Research and Innovation Action

Coordinator

FEI ELECTRON OPTICS BV

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Building 22
76100 Rehovot
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BRUKER TECHNOLOGIES LTD
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75015 Paris 15
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ATTOLIGHT SA
Switzerland
EU contribution
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SEMILAB FELVEZETO FIZIKAI LABORATORIUM RESZVENYTARSASAG
Hungary
EU contribution

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**Last update:** 14 July 2020  
**Record number:** 202643

**Permalink:** [https://cordis.europa.eu/project/id/692527/](https://cordis.europa.eu/project/id/692527/)

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