

A Turkish SME developing accessible ALD (atomic layer deposition) machines for prototype and mass-manufacturing phases for labs and companies is looking for industrial and academic collaborations as well as grants.

Summary

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|-----------------------------|--|------------------------|
| Profile type | Company's country | POD reference |
| Technology offer | Turkey | TOTR20230705005 |
| Profile status | Type of partnership | Targeted countries |
| PUBLISHED | Research and development cooperation agreement Commercial agreement with technical assistance | • World |
| Contact Person | Term of validity | Last update |
| Anita ABOLA | 5 Jul 2023 4 Jul 2024 | 5 Jul 2023 |

General Information

Short summary

A Turkish SME was founded by scientists with more than 40 years of combined nanotechnology and ALD expertise. Over 300 published academic papers in the area of Atomic Layer Deposition. The SME focuses on possible collaborations with EU partners who are interested in developing applications using ALD technology. Their ALD scientists develop recipes for growing novel materials as well as improving the layer quality.

Full description

A Turkish SME was founded by scientists with more than 40 years of combined nanotechnology and ALD expertise. Over 300 published academic papers in the area of Atomic Layer Deposition (ALD).

SME is building lab-scale ALD tools for university researchers and industrial research groups. Their philosophy is to design tools that can make ALD technology accessible to all researchers. Therefore, in their tool design, they emphasize reducing complexity and promoting easy use for their customers while providing best-in-class performance and customization driven by research needs. Their mission is to enable researchers into the ever-growing world of ALD in a budget-friendly manner. Their team's vision is to achieve ALD-FOR-ALL-LABS.

Now they are looking for EU collaboration possibilities for new product developments or improving existing products.

Advantages and innovations

ALD technology offers several advantages, including:

1. **Precise Film Control:** ALD provides precise control over film thickness and composition at the atomic level. It enables the deposition of ultra-thin films with excellent uniformity and conformality. This control allows for the creation of complex layered structures and precise tuning of material properties.
2. **Conformal Coating:** ALD can coat complex and three-dimensional (3D) surfaces with high conformity. It is capable of depositing films evenly on high-aspect-ratio structures, such as nanotubes, nanopores, or trenches. This conformal coating is crucial in various applications, including microelectronics, energy storage devices, and catalysts.
3. **High Quality and Purity:** ALD enables the growth of high-quality films with excellent purity. The self-limiting nature of the ALD process results in low defect densities, high crystallinity, and excellent film adhesion. The technique also allows for precise control of impurities and elemental composition.
4. **Excellent Thickness Control:** ALD provides atomic-level thickness control, enabling the deposition of films ranging from a few atomic layers to hundreds of nanometers. This level of control is essential for many applications, such as gate dielectrics in transistors or protective coatings in various devices.
5. **Versatility:** ALD can deposit a wide range of materials, including metals, oxides, nitrides, sulfides, and more. This versatility allows for the fabrication of diverse functional materials and structures tailored to specific applications.
6. **Scalability:** ALD technology is scalable, making it suitable for both research and industrial production. It can be implemented in batch or single-wafer systems, allowing for high-throughput manufacturing processes.
7. **Compatibility with Sensitive Substrates:** ALD is a low-temperature deposition technique, making it compatible with temperature-sensitive substrates, such as plastics, polymers, and organic materials.

Technical specification or expertise sought

They are looking for 2 different types of partners:

1. Partners who are developing products or processes that contain atomic layer deposition applications. They are open to collaborating with universities, research centers, SMEs, and industrial companies in this regard.
2. Partners who need to enhance their product's mechanical, thermal, and chemical properties by using ALD technology.

Partners who are operating in the following sectors: defense, aerospace, photovoltaic panels, and energy storage/battery production.

Technical specification and customization conditions of their ALD tools can be seen in the "advantage and innovation section".

Stage of development

Under development

IPR Status

IPR applied but not yet granted

Sustainable Development goals

• **Goal 12: Responsible Consumption and Production**

Partner Sought

Expected role of the partner

Academic or industrial research labs for new ALD related project. Company profile sought: Chemical, pharmaceutical, energy, catalysis, etc.

Type of partnership

- **Research and development cooperation agreement**
- **Commercial agreement with technical assistance**

Type and size of the partner

- **SME 50 - 249**
- **SME 11-49**
- **University**
- **R&D Institution**
- **Big company**
- **SME <=10**

Dissemination

Technology keywords

- **02002015 - Surface treatment (painting, galvano, polishing, CVD, ..)**
- **02002002 - Coatings**
- **02007024 - Nanomaterials**
- **02002006 - Hardening, heat treatment**
- **01002001 - Micro and Nanotechnology related to Electronics and Microelectronics**

Targeted countries

- **World**

Market keywords

- **08001007 - Coatings and adhesives manufactures**
- **006005002 - Photovoltaic solar**
- **03001001 - Semiconductors**
- **006005001 - Solar energy**
- **03001007 - Circuit boards**

Sector groups involved

- **Renewable Energy**
- **Energy-Intensive Industries**
- **Aerospace and Defence**