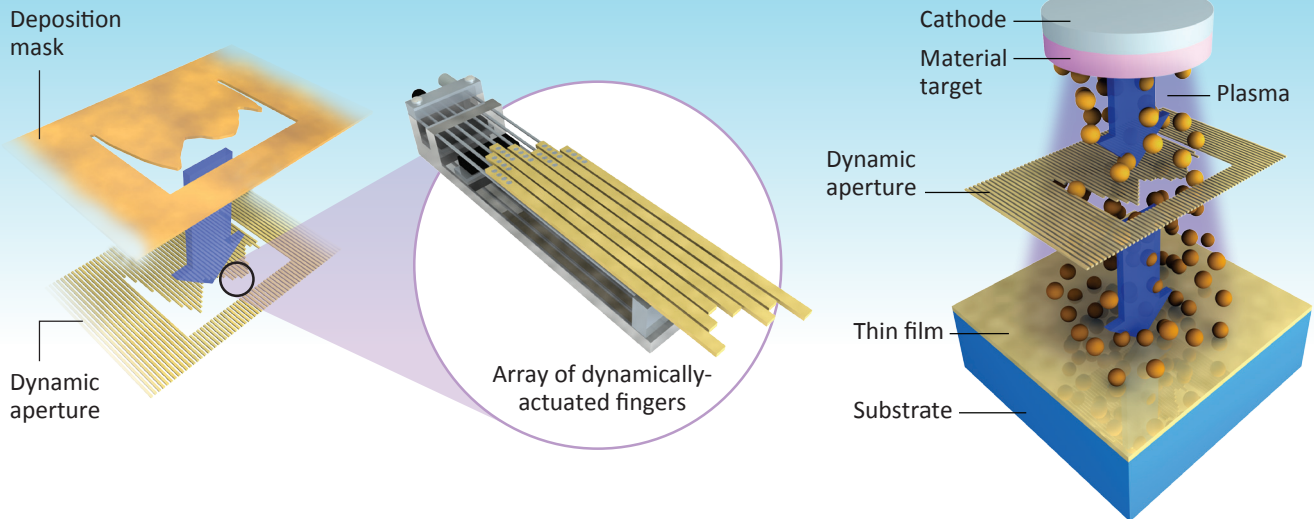


# DYNAMIC APERTURE

*An array of dynamically-actuated fingers for real-time control of thin film deposition*



All physical vapor-based processes are characterized by a unique spatial distribution of particle density (which is not necessarily constant over time due to changes in the source or environment) which needs to be controlled or modified. Variations in particle density are compensated for by shielding portions of the flux. Typically, this shielding simply consists of a solid mask cut from sheet-metal.

When source characteristics change, or when there are new coating requirements, engineers and technicians undertake the arduous process of hand-tweaking the shielding. Also, because the shielding is fixed, the coating thickness profile cannot be changed during actual coating.

The Dynamic Aperture is a deformable mask, or physical barrier that is comprised of multiple, identical actuated baffle modules for real-time control of thin-film deposition and/or ion-beam erosion in three dimensions. The device has been specifically-designed for failure-free operation in harsh vacuum environments that contain strong magnetic fields and plasma.

Due to its small form factor and flexible feedthrough requirements, the Dynamic Aperture is easy to integrate into both new and existing equipment. Thanks to the multi-element module design, the DA can be configured for a range of source sizes.

## APPLICATIONS:

- Photovoltaic devices
- IC components
- Precision optical coatings
- Optical surface figure correction
- Organics

## COMPATIBLE WITH ANY DIMENSIONALLY-DISTRIBUTED PARTICLE PROCESS, INCLUDING:

- Sputtering
- Evaporation
- Ion-beam figuring

## CONTACT

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<http://www.anl.gov/downloads/dynamic-aperture>