

## UMF Equipment – Sputtering System

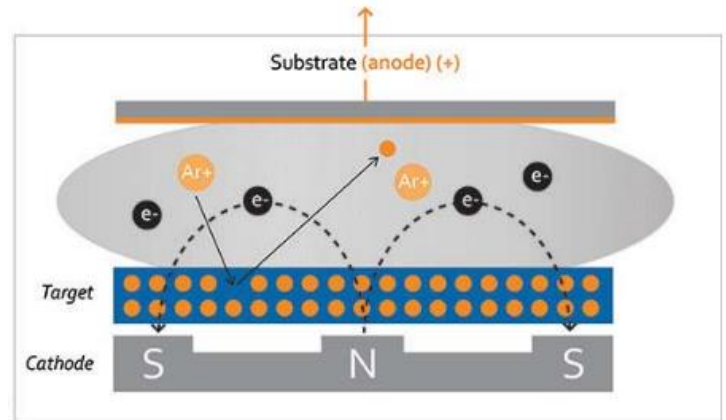
### Denton Explorer 14

Magnetron sputtering is a highly versatile technique for the deposition of a very dense films with excellent adhesion. A type of physical vapor deposition (PVD) coating technology, magnetron sputtering is a plasma-based coating technique. In this process, magnetically confined plasma is created near the surface of the target material. Ions from that plasma collide with the target material, and the atoms ejected from those collisions are what are “sputtered”, or deposited onto the substrate to create the thin film. It is often used for metallic or insulating coatings for optical and electrical purposes.

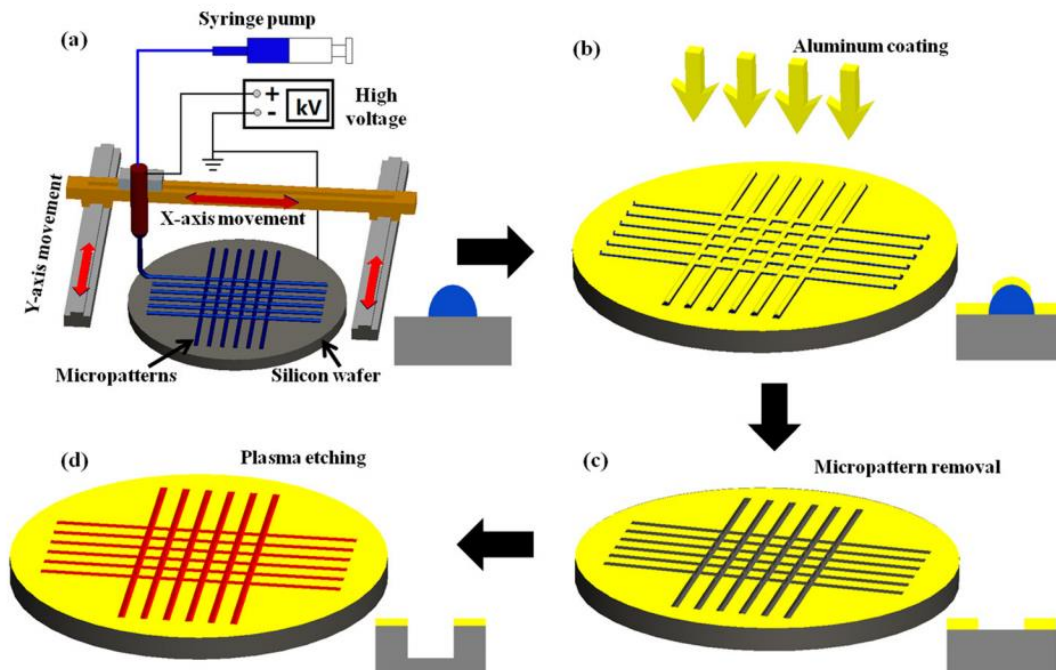
- Features:
- Substrate size: Up to 4”
  - Substrate rotation: 0 – 20 rpm
  - Vacuum: Achieve to  $10^{-7}$  Torr
  - Target source: 3” target × 2 and 2” target × 2
  - Thickness control: Inficon deposition controller
  - Sputtering mode: RF and DC
  - Film uniformity:  $\pm 3\%$
  - Substrate heater: Maximum 500°C
  - Mass flow controller: 100 sccm full scale

Please refer to supplier information page: <https://www.dentonvacuum.com/products-technologies/e-beam-evaporation/explorer/> for further details of the system.

For any inquiry, please contact Dr. Terence Wong (Tel: 3400 2075; Email: [tai-lun.wong@polyu.edu.hk](mailto:tai-lun.wong@polyu.edu.hk)).



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A thin layer of 50nm Aluminum is uniformly coated on the surface of micropatterned silicon wafer in a metal sputter Denton Explorer 14 Sputtering System [Appl. Phys. Lett. 105, 253109 (2014)]