**Electrochemical Deposition**

**Fast Facts**
- High flexibility in thickness and substrate material
- High layout variability
- Low temperature processes
- Good adhesion

**General Description**

The Fraunhofer ENAS utilizes the electrochemical deposition (ECD) from water-based electrolytes and ionic liquids (ILs) on wafer level. Different applications are addressed such as the formation of intermediate bonding layers (SLID bonding, thermo compression bonding), Through Silicon Vias (TSVs) or multilayers for reactive wafer bonding. Standard processes comprise for instance the deposition of Cu, Ni, Au, Sn/SnAg as well as Al. This can be done as blanket deposition (e.g. for a damascene process) or as pattern plating process by using a photo resist mask. At Fraunhofer ENAS different deposition systems are available as listed below.

**Available Deposition Equipment**
- Fully automatic Fountain plater ClassOne Solstice S4 (100 – 200 mm)
- Semi-automatic vertical deposition tool for 100 – 200 mm wafers (Ramgraber)
- Semi-automatic fountain plater for 100 – 200 mm wafers (RENA)
- Mobile Plating Unit for ionic liquid based ECD (Silicet AG)
- Basic research on beaker level
Aluminum bumps with 30 µm diameter for ultrasonic flip chip bonding.

Metallization of TSV-blind vias.