Ion milling evaporator system

- Big improvements:
  - pumping time <30min,
  - better and more stable vacuum (10e-7 Torr);
- The chamber contains Lead and other heavy metals, closely follow the SOP.
  - Materials have been evaporated in this system: Au, Ag, Al, Cu, Fe, Ti, Ni, Cr, Pb, Sn, In
- Do not use powders for thermal evaporation process.
- Slight changes to the SOP.

Past

Now

New gauge helps to better monitor the pumpdown process

Put samples and tools on this table

No samples or tools on this table
AJA3 Sputtering System

- Make sure the viewports are covered before starting your process.
- Be aware of the gold usage. Calculate how much gold you can still deposit.
- Stay with the system during process.

The view ports have been coated with films

(1.53 – Target KWH) X 8000 nm
Atomic Layer Deposition

- For depositing Al2O3, TiO2, and HfO2 films.
- If needed, change chamber temperatures only in your recipe.
- Samples have high aspect ratio features (>10:1) or high surface areas (e.g. carbon nanotubes) may need a special recipe.
- Never change the precursor temperature settings.

Standard recipe for Al2O3 deposition

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<tr>
<td>flow</td>
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</table>
Furnaces

- Hydrogen furnace has been improved for graphene/carbon nanotube growth.
  - Better mass flow controllers to enable very low flow rates;
  - High purity methane and hydrogen gases.
- Keep door open when inside, Close door when leave.
- Safety glasses is required.
Sharps

- Probes, slides, etc. should go into proper waste containers - not left on tables.
- If you don’t need the probes, put them into the sharp container.
Labs are not storage areas

- Samples will be discarded.
- Unclaimed toolboxes will be removed periodically.
Logbooks

- Optical microscopes and probe station are examples of equipment where users often failed to fill in logs.
- Not filling in logs is stealing.
- Usage records help MRL to get funding from different resources, and make MRL a better place for you to perform research with more advance tools and support.