

# SOP for Sputter

## Regulations:

1. Record in the logo book **before** you start operating the system!
2. Open water **first**, and always **check water flow** when you come back!
3. Wear gloves, **if not**, clean the chamber with IPA and heat the chamber up to 60°C in vacuum for 2 hours!
4. Remove **any tapes and any personal belongings** from the desk when you finish!

## Brief process:

1. Fill in LOGO book. Turn on the power source and the **cooling water**.
2. Turn on the flow of Ar to open the chamber, and load target and sample with the shutter if necessary.
3. Close the chamber, and turn the machine pump and throttle valve.
4. Pump the pressure down to 20 Pa, and then turn on the molecular pump.
5. Waiting for 1 hour.
6. **Check water flow**. Turn off the throttle valve, and adjust the Ar flow to 10sccm for around 10min. Adjust the monitor to the suitable values.
7. Turn on the corresponding source, and start deposition. (Check water flow, open shutter)
8. Turn off the source, Ar flow and molecular pump in sequence.
9. When the molecular pump stopped completely (4min), close the machine pump and open the chamber to take out your sample.
10. Pump the chamber back to vacuum by machine pump.
11. Clean the desk.

## Operation standards:

### 1. Water flow



### 2. LOGO book record

Record time, name, target and thickness in advance. Before you start deposition, check water flow and write ok, finally write the deposition pressure in condition.

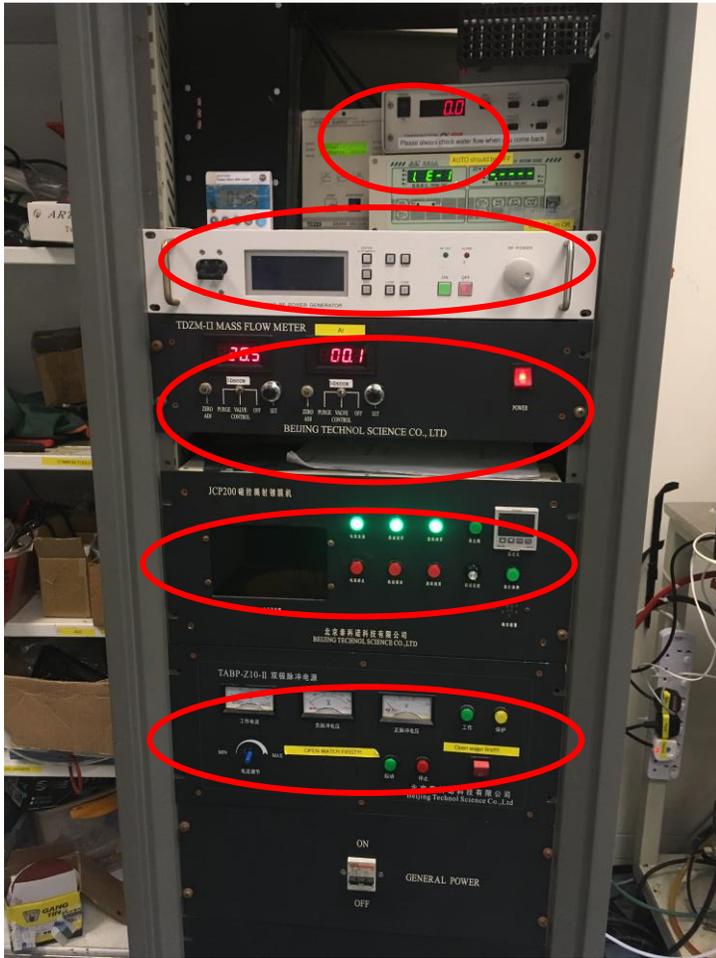
Any description or changes can be only written in "Condition", don't use other place to write.

Time	Name	Target	Thickness	Check Water	Condition	Date

### 3. Use bag to seal it and store according to name.



#### 4. Equipment introduction



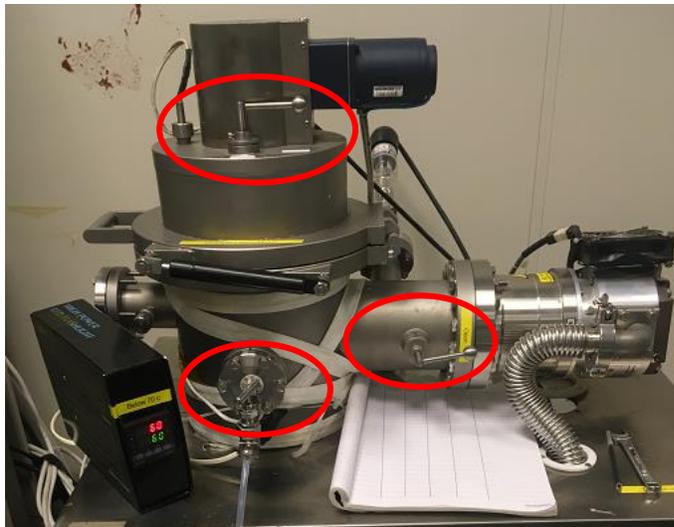
Monitor

RF-source

Flow control

Pumping panel

Pulse-source

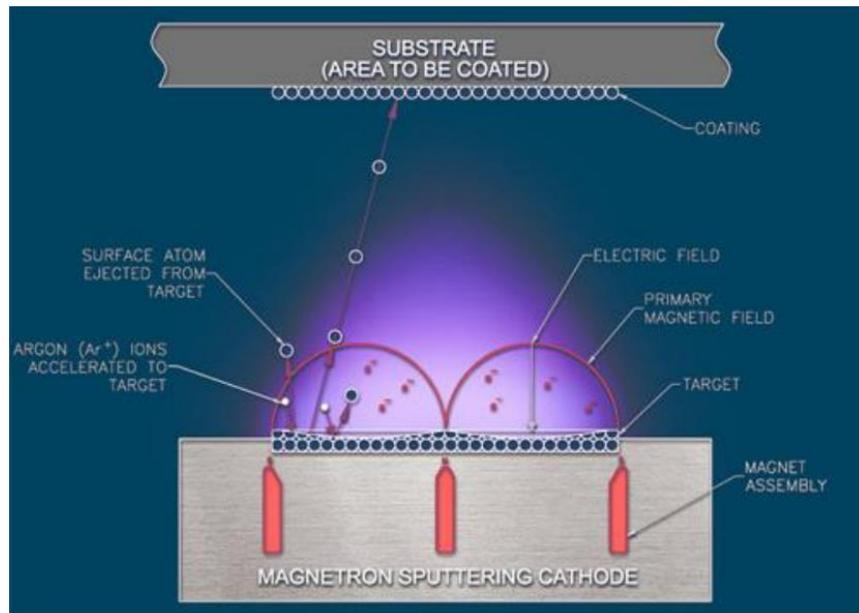


Shutter

Valves

Reference mechanism and chart

1. Mechanism



2. Calibrated value for monitor

Material	Density	Tooling factor
Al	2.73	1.25
Ti	4.5	1.25
Pt	21.45	1.25
Ni	8.902	1.25
W	19.3	1.25
Cu	8.92	1.25
ITO	7.156	1.25
Cr	7.19	0.3(thermal)
Si	2.33	1.25
SiO <sub>2</sub>	1	1.25

## Quiz test:

1. When you come back after 1 h vacuum pumping, what's your next step?
2. How to fill in the log book of Sputter?
3. Can you leave your tapes sticking on the desk?
4. Can you touch the inside chamber with your bare hand and how to handle it if you do so?
5. What is the mechanism of magnetron sputtering?