UiB NanoStructures Laboratory

Standard Operating Procedure

Laurell WS 400BX spin coater

Purpose of the instrument:

The Laurell Spin Coater WS 400BX is used applying layers of resist onto wafers used for electron beam lithography or Photolithography

Location of the instrument:

Allégaten 55, room 286 (entrance via room 276, E-Beam lithography Lab)

Primary Staff Contacts:

Sabrina Eder (Mob: 9420 47 33, E-mail: sabrina.eder@uib.no)

Martin Greve (Mob: 900 79 974, E-mail: martin.greve@uib.no)

Instrument booking:

No booking required.

Instrument access:

The instrument can be used by approved users after an introduction and basic training by UiB personnel. For training requests please contact primary staff.

Available source materials amongst others:

PMMA (Poly(methyl methacrylate))e-beam resist,

Ar-p 3540 (2- methoxy-1-methylethylacetate) Photoresist

WARNINGS

Make sure to close the lid on the spin coater before running the spin cycle to avoid spilling of the materials.

- Do not touch or hold the shaft or chuck while rotating. Severe injury may result.
- Substrate may fly off rotating chuck. Precautions should be taken to protect operator and others from injury while operating spin coater equipment.
- Motor brushes and switch contacts may produces electrical sparks. Do not use the laboratory spinner in the presence of any explosive atmosphere.
- Early termination of preset cycle may result in machine reverting to maximum revolutions when restarting. Please shut off machine before resetting.

The UiB NanoStructures Lab is operated for the benefit of all researchers. YOU MUST HAVE RECEIVED PERSONAL TRAINING ON THE INSTRUMENT TO BE PERMITTED TO OPERATE IT! IF YOU HAVE BEEN TRAINED AND ARE STILL UNCERTAIN AS TO HOW TO OPERATE THE INSTRUMENT CONTACT ONE OF THE STAFF MEMBERS. If you encounter any problems with this piece of equipment, please contact the staff member listed above immediately. There is never a penalty for asking questions. If the equipment is not behaving exactly the way it should, contact a staff member. This SOP only serves as a quick reference. For further details consult the manual and/or service engineers.

Basic Usage

1. Place the wafer onto the holder in the center of the spin coater. 2. Turn on the compressor pump for the vacuum.
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Figure 1: Vacuum pump

3. Turn on the nitrogen gas line to the system.
4. Turn on the hotplate to the wanted temperature for use later (it needs time to heat up). For PMMA the temperature is 175°C.

Figure 2: Hotplate

5. Press the vacuum button on the spinning tool. Make sure the wafer is actually stuck to the holder by the vacuum.
6. Set the wanted spin program on the display.
7. Drip enough (a circle of about 1/3 the size of the wafer) of the material you are spinning onto the center of the wafer, using a clean pipette. Avoid making bubbles in the liquid (if a bubble appears you can try to remove it by suctioning it up using the pipette). A clean pipette is one that has been solvent cleaned in the fume hood (using acetone, methanol and isopropanol).
8. When this is done start the spin process.
9. AFTER the spinning stops and you want to remove the wafer press the vacuum button, so the wafer is no

longer stuck to the holder.

10. When the wafer is finished spinning it needs to be baked to harden the resist. This is done at the hotplate, which was turned on earlier. Place the wafer at the center where there is a hole connected to the pump, the wafer should be stuck to the hotplate by this hole.
11. After the wafer has baked for the given amount of time (common time for PMMA is 90 seconds) remove the wafer from the hotplate and turn the hotplate off. The wafer is now ready to be cut, used or set aside for later. Wafers should be stored in fluoroware containers to avoid contamination from dust or other damaging factors.

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