

UiB NanoStructures Laboratory

Standard Operating Procedure

Süss MicroTec Mask Aligner MJB4

Purpose of the instrument:

The MJB4 Mask Aligner is a precision instrument for high-resolution photolithography and is intended for use in research laboratories, small-series production and pilot projects. The MJB4 allows for exposing standard wafers and substrates and irregularly shaped substrates with a diameter of up to 100 mm or 4"x 4" and various thicknesses. A single-field microscope and a split-field microscope, which can also be equipped with an optional video system, are available for adjusting the top side. IR adjustment is available for both microscopes.

Location of the instrument:

Allégaten 55, room 286 (entrance via 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 by UiB personnel. For introduction requests please contact primary staff.



WARNINGS

The upper microscope pivots upwards. There is a risk of lamp explosion if the lamp house is opened prematurely while the lamp is hot. The exposure lamp has to cool down for at least 20 minutes before the lamp house door is opened! The controlled cooling required for more powerful lamp types must also be left in operation during the cooling phase! UV light can acutely or permanently damage your eyes. Covers over the ray path may not be removed while the UV lamp is switched on.

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.

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Deleted: SC 7620 Mini Sputter Coater

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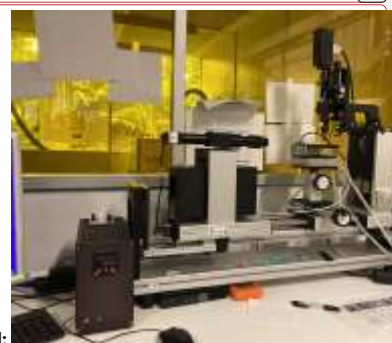
Deleted: OCA 20L is an optical contact-angle and interfacial tension measuring device. Whatever

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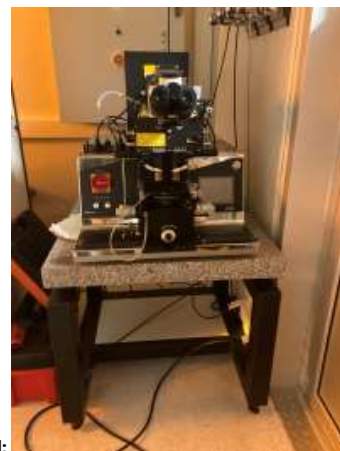
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Service Contacts:¶



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General operations

(a) see manual



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Basic Usage (Sputter coate Au/Pd)Measuring methods and resultsGenera

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<object>Starting point is always the simplified Young-Dupré's equation for the balance of forces in the so-called "three-phase point" between liquid, solid and vapor.¶

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The most important measuring principles feasible with the OCA are listed below:¶

- Sessile drop method¶
- Captive drop method¶
- <object>• Tilting plate method¶
- Pendant drop method (not with OCA 5/10)¶

The obtainable measuring results are:¶

- Static contact angle¶
- <object>• Dynamic contact angle (not with OCA 5/10)¶
- Surface and interfacial tension (not with OCA 5/10) ¶
- Surface free energy¶

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Deleted: (i) Check that **LEAK** and **VENT** valves are closed, (fully clockwise).¶

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(ii) Check the argon cylinder regulator is open. Set pressure to 0.5 bar (5- 10psi).¶

<object>¶

(iii) Set **TIME** control to 15 seconds.¶

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Document History

Version 0.1, OCT-2023, Author: Sabrina Eder, Changes: Basic Usage Procedure and Layout

Formatted: Font: 12 pt, Bold, Underline

Deleted: February

Deleted: 12

Deleted: Xiaodong Guo

Deleted: Thomas Reisinger,

Deleted: Version 0.2, October-2023, Author: Sabrina Eder,
Changes: Front page