

UNIVERSITY of HOUSTON

NANOFABRICATION FACILITY

USER FEE SCHEDULE

Release Date¹: Feb 7, 2014

Facility Director: Prof. Dmitri Litvinov, litvinov@uh.edu, Phone: 832-842-8845
Facility Manager: Dr. Kelley Bradley, rkbradley@uh.edu, Phone: 832-842-8822
Website: nanofab.uh.edu

| Resource | Notes | Rates | | |
|------------------------------------|--|-----------------------|----------------------------------|------------------------------|
| | | University of Houston | Other University/Nonprofit | Industrial User ² |
| Cleanroom Access Fee | Each month, enter cleanroom 0 times: no fee; enter >= 1 times: full fee | \$200/Month | \$300/Month | \$400/Month |
| SEM/e-Beam | FEI XL-30FEG SEM w/ JCNabity NPGS | \$25/Hour | \$27.50/Hour | \$125/Hour |
| FIB ³ | FEI 235 Dual-Beam Focused Ion Beam | \$50/Hour | \$75/Hour | \$350/Hour |
| UHV Sputtering System | AJA ATC 2400 (6+1 source) | \$30/Hour | \$45/Hour | \$150/Hour |
| AFM | Veeco Dimension 3000 | \$20/Hour | \$30/Hour | \$100/Hour |
| Mask Aligner | Kasper and ABM Systems | \$45/Hour | \$67.50/Hour | \$75/Hour |
| RIE 80 | Oxford Instruments Plasmalab 80 Plus | \$60/Hour | \$90/Hour | \$100/Hour |
| RIE 100 | Oxford Instruments Plasmalab 100 | \$60/Hour | \$90/Hour | \$100/Hour |
| Ion Mill | Veeco | \$10/Hour | \$15/Hour | \$75/Hour |
| RTP | AIWin21 AccuTherm AW 410 RTA/RTP | \$10/Hour | \$15/Hour | \$50/Hour |
| Sputtering/eBeam Evaporator System | Bosch (1 source)/Thermionics eBeam Evaporator | \$10/Hour | \$15/Hour | \$75/Hour |
| RIE 180 | Oxford Instruments Plasmalab 180 | \$60/Hour | \$90/Hour | \$100/Hour |
| Annealing Ovens | Blue M | \$5/Hour | \$7.50/Hour | \$20/Hour |
| eBeam Writer ³ | JEOL JBX 5500FS | \$60/Hour | \$90/Hour | \$200/Hour |
| Desktop Sputtering System | Denton Desk II | \$20/Hour | \$30/Hour | \$100/Hour |
| He Leak Detector | Varian Helium Leak Detector | \$500/Day | NA | NA |
| Spin Coaters | Brewer Cee 200 | | Included In Cleanroom Access Fee | |
| Ellipsometer | Gaertner | | Included In Cleanroom Access Fee | |
| Profilometer | Tencor Alpha-Step 200 | | Included In Cleanroom Access Fee | |
| Ozone Cleaner | UVOCs Inc, Ultra Violet Ozone Cleaning System | | Included In Cleanroom Access Fee | |
| Optical Microscopes | | | Included In Cleanroom Access Fee | |
| Fume Hood/Wet Benches | | | Included In Cleanroom Access Fee | |
| Tag-along Training ³ | Training | Free | Free | Free |
| Certification ³ | Training | \$200/Hour | \$200/Hour | \$400/Hour |
| Staff Training ³ | Training | \$200/Hour | \$200/Hour | \$400/Hour |
| Cap ³ | The Cap is the maximum fee charged per user per month and per year. | \$600/Month | \$600/Month | None |
| | Both the monthly and yearly caps apply. Some fees are not capped. ³ | \$4000/Year | \$4000/Year | None |
| Contract Fabrication ⁴ | Have your part made by the facility staff. | \$325/Hour | \$325/Hour | \$650/Hour |

Gaining Access: Please contact Facility Director, Prof. Dmitri Litvinov, at litvinov@uh.edu to discuss gaining access to the facility.

Training: Users must be trained and certified prior to being granted use of resources. Certification is included with training when users are trained by staff or staff appointee. Tag-along trainees will need to schedule a time with a staff member to demonstrate competency in order to gain certification. Tag-along training is a mechanism to allow one user to train another user. Both the trainer and trainee must get approval prior to the start of training. The trainer reserves the resource and incurs the normal rate fee, there is no fee to the trainee.

Consumables: The facility provides cleanroom garments and personal protective equipment. The facility does not provide consumables such as AFM probes, sputtering targets, photoresist, developer, etc. In certain cases consumables may be provided for a fee (based on actual cost +20%). Please contact Dr. Kelley Bradley at rkbradley@uh.edu for questions or if you need help in selecting consumables.

Significant Use Fee: The significant use fee is equal to the monthly cap (and is itself a cap eligible fee.) It applies when: (A) the facility user occupies a resource for a significant amount of time or (B) the facility user requests a modification to a tool or to infrastructure that takes significant staff time and/or facility funds. Significant use fees are never applied retroactively, the facility user must agree in advance and it is always handled on a case-by-case basis. The significant use fee for industrial users is also handled on a case-by-case basis.

Noncompliance Fee: All facility users are expected to follow facilities policies and staff instructions. If a user is noncompliant, the primary investigator responsible for the user's fees will be contacted; if the user continues to be noncompliant a fee of \$600 (non-capped) will be charged each month until the facility user comes into compliance. In cases where a threat or perceived threat to the health and safety of others is involved the non-compliance fee may be applied on the first incident and without giving prior warning to the PI; in severe cases multiple non-compliance fees may be assessed for different aspects of the same incident. The PI may elect permanent banishment from the Nanofab for the users involved in the incident instead of paying the fees.

Notes: ¹ The fee schedule is reevaluated on a regular basis to provide the best value to the users while securing sufficient resources for ongoing operation of the facility. Fees will be charged at the most current rate; please contact Dr. Kelley Bradley at rkbradley@uh.edu for the latest fee schedule. ² As Per OMB Circular A-110 Subpart C, Section .34.b industrial user fees are set at a level which is intended not to be less than private companies charge for equivalent services. ³ The cap is the maximum amount per user that will be charged regardless of actual use. Fees are capped on a monthly and yearly basis, both caps apply. The monthly cap is by calendar month and the yearly cap is from September to August. The yearly cap for new users will be prorated based on number of months left in the year. Please note: Some fees are not capped. The cap does not apply to the following fees: Training, FIB, JEOL eBeam Writer, consumables and contract fabrication. (Examples: If a user incurs a \$200 FIB fee, a \$60 training fee, a \$550 AFM fee and a \$250 SEM fee the monthly cap would apply to the AFM and SEM fees resulting in a charge of \$860, if the yearly cap had already been met the charge would be \$260). ⁴ Contract fabrication offered on a case by case basis. Please contact the Facility Director, Prof. Dmitri Litvinov litvinov@uh.edu to discuss your job. Fees are based on estimated hours required to complete the job; estimated hours and total fee will be established before work begins.