

### Montana Microfabrication Facility (MMF) Fees

Equipment/process	Academic	Industrial	User Training <sup>1</sup>
<b>Processing Equipment</b>			
Angstrom Sputter <sup>2</sup>	\$100 + \$50 setup	\$200 + \$50 setup	\$400
Plasma etcher: March 3124	\$30	\$60	\$100
Oxidation furnace:	\$50	\$100	\$100
Boron diffusion furnace:	\$50	\$100	\$100
Phosphorous diffusion furnace:	\$50	\$100	\$100
Contact aligner: ABM	\$100	\$200	\$300
Spin Coater: Brewer Cee100CB	\$50	\$100	\$200
Headway EC101	\$20	\$40	
Wet Processing	Included in facility usage fee		
<b>Characterization Equipment</b>			
Stylus Profilometer: AMBIOS XP2	\$30	\$60	\$50
Ellipsometer: Gaertner L116	\$20	\$40	\$50
<b>Packaging Equipment</b> <sup>3</sup>			
K&S 4523AD wedge bonder Au and Al wire available	\$15/hr + 10¢/bond	\$30/hr + 10¢/bond	\$100
K&S 4124 gold ball bonder	\$10/hr + 10¢/bond	\$20/hr + 10¢/bond	\$100
Wafer saw: Microautomation 1006	\$30	\$60	\$100
Lab Usage Fee	\$200 (monthly)	\$400 (monthly)	
Monthly Cap rates <sup>3</sup>	\$2000 / month	\$4000 / month	
Cleanroom protocol & Safety training <sup>4</sup>	No charge		

- Hourly equipment fee based upon individual equipment. Time usage is billed in ½ hour increments.
- Facility Usage Fee - \$200/user/month for academic. \$400/user/month for industrial
- Usage fee covers general lab access, basic wet processing, and inspection microscopes.
- Training fee – as stated in the above table per individual equipment.
- Technical assistance for equipment operation - \$50/hr academic \$100/hr Industrial

1) User training charge is per individual and is not covered in the monthly cap.

2) Use of the Angstrom sputter station may include a setup charge if a target change is required. Standard targets for the Angstrom sputter station include Al, SiO<sub>2</sub>, Cr, and Fe, Permalloy. Additional target usage fees are incurred for the Au target. Targets available at this time -Al, Cr, Au, Fe, Permalloy, SiO<sub>2</sub>, Ni, ITO (\* use requires prior permission from Professor David Dickensheets)

3) Monthly fees are capped at these amounts. User training fees and technician time are not subject to a monthly cap.

4) Protocol and safety training is required for all users prior to gaining access to the lab.