

**LABORATORY FOR ELECTRONIC MATERIALS & DEVICES**  
**SCHEDULE OF EXTERNAL ACADEMIC USER FEES FOR FY 2016-2017**

	INSTRUMENT / BRAND / MODEL	INITIATION FEES	PER VISIT FEES	External Academic Hourly Rates FY16				
				unassisted	assisted	cost of materials		
<b>Optical Spectroscopies</b>	UV-vis-NIR spectrometer	Shimadzu UV-3600	1-hr assisted use (training)		\$ 12.50	\$ 18.75		
	PL spectrometer	Photon Technology Ins.	1-hr assisted use (training)		\$ 12.50	\$ 18.75		
<b>Ultraviolet Photoelectron Spectroscopy</b>	UPS Instrument	OMICRON ESCA+S UPS	\$600/user (includes 3 x 3hr training sessions)		\$ 50.00	\$ 75.00		
	Supplied substrates for sample fabrication	ITO		\$50/day <sup>*,§</sup>			* All standard materials for sample fabrication are free of charge (excluding Au and Ag for evaporation)	
		PEDOT:PSS/ITO						
		Au/Si						
		Ag/Si						
Cu/Si								
<b>Electronic Device Fabrication &amp; Characterization Line</b>	Spin-coater in GB	SCS G3P-8	1-hr assisted use (training)		\$ 7.50	\$ 11.25		
	Thermal Evaporator in GB	MBraun 2-source	3-hr assisted use (training)		\$ 20.00	\$ 30.00		
	Supplied materials for thermal evaporation	Boats					Free of charge	
		Au					\$50/pellet (50 nm)	
		Ag					\$5/pellet (50 nm)	
		Al, Ca, LiF, MoO <sub>3</sub> , Cu					Free of charge	
	IV station (includes solar simulator) in GB	Keithley 2400 / SS 91160	1-hr assisted use (training)		\$ 20.00	\$ 30.00		
	QE/IPCE Instrument	Oriel QE-PV-SI Kit	1-hr assisted use (training)		\$ 15.00	\$ 22.50		
	Supplied materials for device fabrication	Shadow masks			\$100/day <sup>Σ</sup>			Free of charge
		ITO substrates						\$3/pc.
		PEDOT:PSS						Free of charge
Common org. solvents							Free of charge	
Vials							Free of charge	
Syringes/Needles							Free of charge	
Pipets/Tips							Free of charge	
Cotton/polyester gloves							Free of charge	
PVDF & PTFE filters					Free of charge			
<b>Electrochemical Characterization</b>	Cyclic voltammetry (CV)	BASi, Epsilon Basic w/C3	1-hr assisted use (training)		\$ 12.50	\$ 18.75		
	Supplied materials	Pt electrodes					\$350	
		Ferrocene reference					Free of charge	
<b>Electrical Characterization</b>	Time-Of-Flight Instr.	Custom-made	3-hr assisted use (training)		\$ 40.00	\$ 60.00		
	Impedance meter	Agilent 4293A	2-hr assisted use (training)		\$ 20.00	\$ 30.00		
	IV with Solar Simulator	Keithley/Oriel SOL2A	1-hr assisted use (training)		\$ 20.00	\$ 30.00		

§ Includes access to: (1) ultrasonic cleaner and organic solvents, (2) oven, (3) UV-Ozone cleaner, (4) Spin-coaters for aqueous solutions outside and organic solvents in GB, (5) hot plates; metal evaporation is charged at regular thermal evaporator rates

Σ Includes access to: (1) N2 storage cabinet and glove box, (2) ultrasonic cleaner with organic solvents, (3) oven, (4) UV-Ozone cleaner, (5) spin-coater for aqueous solutions, (6) balances, (7) hot plates, (8) multimeters, (9) surface profiler; metal evaporation is charged at regular thermal evaporator rates

Signature \_\_\_\_\_

Date \_\_\_\_\_