**Facilities, Equipment and Other Resources**

***\*Please remember to fill-in all the yellow highlighted language and/or remove any non-relevant sections that are not used on your project.***

***NSF Guidelines (see*** [***PAPPG Section II.C.2.i***](https://nsf.gov/pubs/policydocs/pappg18_1/pappg_2.jsp#IIC2i)***):*** *This section of the proposal is used to assess the adequacy of the resources available to perform the effort proposed to satisfy both the Intellectual Merit and Broader Impacts review criteria. Proposers should describe only those resources that are directly applicable. Proposers should include an aggregated description of the internal and external resources (both physical and personnel) that the organization and its collaborators will provide to the project, should it be funded. Such information must be provided in this section, in lieu of other parts of the proposal (e.g., Budget Justification, Project Description). The description should be narrative in nature and must not include any quantifiable financial information. Reviewers will evaluate the information during the merit review process and the cognizant NSF Program Officer will review it for programmatic and technical sufficiency.*

**UC Irvine School of Engineering Facilities and Major Equipment**

**PI Facilities and Resources:**

* *XX PI’s Laboratory***:** The facilities designated to Professor XX includes --- sq. ft of laboratory space in \*state building and room number.\* The lab includes \*describe lab and all its features.\*
* *Computer***:** Computer equipment include a shared office computer for word processing, data analysis, and image processing and dedicated computers operating equipment. UCI also has additional computer laboratories.
* *Office***:** Dedicated faculty office space ~150 sq. ft. within the --- building. Desk space for students and researchers is included in the laboratory.

**Shared Facilities (recharge rates apply):**

**RapidTech Laboratory:** RapidTech, a National Center for Rapid Technologies, has teaching and demonstration lab capabilities in 445 Engineering Tower at UC Irvine.

Available Equipment:

* + 1. SONY SCS-8000 and 3D Systems SLA 250/50 Stereolithography Systems
    2. DTM Sinterstation 2000 Selective Laser Sintering System
    3. Tousimis Supercritical Point Dryer System
    4. ZCorporation Spectrum 510 and Z310 3D Printing Systems
    5. Dimension SST 1200es Fused Deposition Modeling
    6. 3D Systems Thermojet Multi Jet Modeling
    7. EnvisionTec Perfactory Digital Light Projector
    8. Pinnacle M-25 Laser Cutter/Engraver
    9. NextEngine, Zscan Z700, and VIVID 910 Konica-Minolta Laser Scanners
    10. Techno LC 3024 CNC Router
    11. Compact MIDI 320 Vacuum Forming

**Laboratory for Electron and X-ray Instrumentation (LEXI):** LEXI is the organization that trains, teaches, and promotes materials characterization on campus. LEXI also actively manages and maintains the instruments and sample preparation equipment in *Calit2* and MC2 (instrument descriptions below in corresponding sections). Eligible users reserve time on all instruments through the LEXI website, and the facility is available for use by undergraduate classes. LEXI staff include two Ph.D. level staff members who oversee all activities within the *LEXI* facility: Dr. Jian-Guo Zheng, with expertise in SEM and TEM, and Dr. Qiyin Lin, with expertise in XRD and UHV surface analysis.

**The California Institute for Telecommunications and Information Technologies (*Calit2*) Facility:** *Calit2* is a multi-disciplinary building that houses nanoscale device, semiconductor and materials processing and characterization facilities, including a Scanning Electron Microscope (SEM) and an FEI Quanta 3D FEG SEM/FIB (Focused Ion Beam). *Calit2* has a 3,700 sq. ft. Class 1000 cleanroom and BioMEMS and NEMS laboratories.

**Materials Characterization Center (MC2):** MC2 is a university-wide user facility for the micro- structural and micro-chemical characterization of materials and is located in the Engineering Tower. The center has transmission and scanning electron microscopy, sample preparation, X-ray diffraction, optical microscopy, and dark room facilities.

**Nanofabrication Research Facilities and Equipment (INRF):** The INRF is a well-equipped facility connected to the *Calit2* building and dedicated to the research and development of technology for integrated micro and nanosystems. It has an 8,600 square foot class 100/1,000/10,000 clean room and equipment for photolithography, thin-film deposition and material growth, dry and wet etching, packaging, and sample preparation as well as ovens and analytical equipment.

**Center for Transmission Electron Microscopy at UC Irvine Materials Research Institute (IMRI):** UCI has purchased five major instruments, which include four unique TEMs and a dual-beam focused ion beam (FIB) system. IMRI is the first research lab in the Americas with the newly introduced JEOL Grand ARM and Nion Monochromated UltraSTEM HERMES200, which exceed the atomic resolution boundaries of any commercially available TEM today. All instruments have recently been installed in the new TEM facilities at IMRI.

**Other Resources**

*Provide any information describing the other resources available to the project. Identify support services such as consultant, secretarial, machine shop, and electronics shop, and the extent to which they will be available for the project. Include an explanation of any consortium/contractual arrangements with other organizations.*

**Unfunded Collaborators:** Please note that any substantial collaboration with individuals not included in the budget should be described here and documented in a letter of commitment from each collaborator should be provided (see PAPPG II.C.2.d.iv).

**Senior Personnel:** If no person months and no salary are being requested for Senior Personnel, they should be removed from Section A of the budget. Their name(s) will remain on the Cover Sheet and the individual(s) role on the project should be briefly described here (see PAPPG Section II.C.2.g.c)