

EMSL PROPOSAL PLANNING

User Support Office • (509) 371-6003 • emsl@pnnl.gov

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An EMSL user proposal requires a lot of detailed information for a thorough peer and management review. To aid in this process, we suggest you use this document to help you track the proposal steps and collect the necessary information before you begin filling out the web-based proposal form on EMSL's User Portal. **Proposals submitted without the required information will not be considered.** Please contact the User Support Office if you have any questions throughout this process.

PROPOSAL CHECKLIST

- Discuss your planned research with the appropriate EMSL staff (highly recommended).
- Identify which type of proposal you are submitting (<http://www.emsl.pnnl.gov/access/calls/>).
 - *Note: Most research conducted at EMSL is non-proprietary, with results disseminated to the scientific community through publications in open literature or conference presentations and papers.*
- Collect information needed (e.g., contact information, team information, capability identification)
- Write an abstract, which can be posted on the EMSL website if the proposal is accepted (*does not apply to proposals containing proprietary information*)
- Write your Project Description and Appendices, adhering to the instructions on EMSL's website for the proposal type you are submitting. Proposals not consistent with the applicable guidance will not be considered.
- Create a user account on EMSL's User Portal (<https://eus.emsl.pnl.gov/Portal/>), unless you are a returning user.
- Complete the 3-part, web-based proposal form: 1. Participants, 2. Details, 3. Logistics.
- Save** (for further editing later) or **Submit Proposal** when completed. Once submitted, you will receive an email from the User Support Office (emsl@pnnl.gov) confirming receipt of your proposal.
 - *Note: You will have a limited window in which to edit your proposal after submission. Once it has passed the screening step, you will no longer see the "Edit Proposal" link.*

ONLINE PROPOSAL FORM

PART 1. PARTICIPANTS

Information on file for the person completing the online form will be auto-populated, and you will be able to search EMSL's database for other participants. For each participant who isn't already in the database, the following information is required.

Note: While anyone can write and submit the proposal on behalf of the research team, postdocs and students **may not serve as the principle investigator or co-investigator.** A lead professor or advisor must be included and marked as principle investigator.

- **First Name**
- **Last Name**
- **Profession** (*Graduate Student, Postdoc, Faculty, etc.*)
- **Email Address**
- **Institution Name**
- **Institution Type** (*Academia, Private Industry, etc.*)
- **Country**
- **State** (*if U.S. or Canada*)
- **City**
- **Postal Code**

PART 2. DETAILS

Proposal Details

- **Primary Research Area** (*Materials Science, Chemistry, Biological and Life Sciences, etc.*)
- **Proposal Title** (*plain text only*)
- **Abstract** (*plain text only*)
 - Abstracts for approved General proposals and proposals in response to annual calls **will be posted on the EMSL website as received.**
- **Proposed Research** (*single PDF file*)
 - Requirements may vary, depending on the proposal type you are submitting. Please consult the EMSL website for specific requirements based on proposal type:
 - **General and Science Theme:** http://www.emsl.pnnl.gov/access/proposal_guidance.jsp
 - **JGI-EMSL Collaborative Science Initiative – Letters of Intent:** http://www.emsl.pnnl.gov/access/calls/jgi/guidance_loi.jsp
 - **JGI-EMSL Collaborative Science Initiative – Full Proposals (Invited Only):** <http://www.emsl.pnnl.gov/access/calls/jgi/guidance.jsp>
 - **Special Science Call for Proposals:** http://www.emsl.pnnl.gov/access/calls/science_call/
 - We strongly recommend reading [EMSL's proposal review criteria](#), which includes scoring descriptions and potential considerations within each criterion. *Note: For the JGI-EMSL Collaborative Science Initiative, proposals will **not** be reviewed on EMSL's Science Themes.*
- **Preferred Start Date** (*only for proposals submitted outside of the annual Call*)
- **Proposal Type:** Select one of the proposal types below and any sub-theme, if listed. Further details about each type and its duration can be found at <http://www.emsl.pnnl.gov/access/calls/>.
 - **General**
 - Requests for special consideration:
 - PI providing funding for staff support or identifying a proprietary proposal
 - Requests for rapid access
 - Requests to use resources that are owned or co-owned by non-EMSL programs
 - **Scientific Partner**
 - **Science Theme**
 - Atmospheric Aerosol Systems
 - Biosystem Dynamics and Design
 - Energy Materials and Processes
 - Terrestrial and Subsurface Ecosystems
 - **JGI-EMSL Collaborative Science Initiative**
 - **Special Science**
 - High Resolution and Mass Accuracy MS Capability
 - Quiet Wing Microscopy Capabilities
 - Radiochemistry Annex
 - **Research Campaign**
- **Is this proposal associated with a National Science Foundation Supplemental Funding Request?** <http://www.nsf.gov/pubs/2004/nsf04025/nsf04025.htm>
- **Will you desire the assistance of EMSL staff in obtaining and interpreting the results?**
- **PNNL Staff Contact**
- **Resources:** Determine all resources needed and estimate the time for each **during the first year** of the proposal. Resources are organized in groupings at the end of this document.

PART 3. LOGISTICS

Proposal Logistics

- **Funding Agencies** (Ex: Department of Defense; DOE, Office of Biological & Environmental Research; University, U.S.; etc.)
 - If “DOE, Office of Biological & Environmental Research” is selected for the PI or co-PI, are they currently a BER-funded PI?
 - If so, for which BER project(s) do they have funding?
- **Work Package # / Subcontract #** (required if proprietary or funding EMSL Staff)

Materials & Equipment

- **Will your research involve the use of human blood, tissues, DNA, cells, cell lines, or human biological samples in any form?**
 - **Does this work involve the use of animals?**
 - **Will you be bringing or sending any chemicals to the EMSL facility?**
 - If yes:**
 - Description of chemicals (note the type and quantity of each).
 - How do you plan to bring/send the chemicals to the facility?
 - At the end of the project, what will be done with the chemicals (ex: dispose at EMSL, return to you, etc.)?
 - **Does your experiment on EMSL resources involve samples?**
 - If yes:**
 - Description of samples (note the type and quantity of each).
 - Do any of the samples contain radioactive isotopes?
 - Do any of the samples contain bound or unbound engineered nanomaterials?
 - How do you plan to bring/send the samples to the facility?
 - Will you need to perform sample preparation at the facility?
 - At the end of the project, what will be done with the samples (ex: dispose at EMSL, return to you, etc.)?
- Note: Do not ship any equipment, chemicals or samples to EMSL/PNNL without first coordinating with your host or the User Support Office, (509) 371-6003. Samples will not be accepted without a Sample Submission Form. In addition to EMSL regulations, users are responsible for adhering to all Department of Transportation regulations.**
- **User Equipment** (any equipment you intent to bring to EMSL, including computers that will need to connect to the PNNL network)
 - **Comments**

RESOURCES

Resources are organized below in alphabetical order by groupings of instrument types (not by capabilities), and operate either 24 hours a day/7 days a week or 10 hours a day/5 days a week. The capabilities that use these instruments, as well as their operating hours, are listed on EMSL's website (<http://www.emsl.pnl.gov/capabilities/instrumentList.jsp>).

ANALYTICAL / CHEMICAL

- Analytical: Chromatograph, Gas/Mass Spec System 2005
- Analytical: Chromatograph, Liquid
- Analytical: Chromatograph, Ion
- Analytical: Total Organic Carbon Analyzer (TOC)

BIOLOGICAL SYSTEMS CHARACTERIZATION

- 5500XL SOLiD Sequencers
- Laser Capture Microdissection
- CyTOF – Mass Cytometry
- Mammalian Cell Culture
- Flow Cytometer: Influx
- Microbial Bioreactors

Note: Fluorescence microscopy and spectroscopy can be found in the sections below.

COMPUTING

- Computing: Cascade (Atipa 1440 Intel Xeon-Phi Node FDR-Infiniband Linux Cluster)
- Computing: Data File Storage (Aurora) (GB)

DEPOSITION

Thin Film

- Deposition: Hybrid Thin Film Deposition System
- Deposition: Molecular Beam Epitaxy #1
- Deposition: Oxygen Assisted Molecular Beam Epitaxy
- Deposition: Pulsed Laser Deposition System
- Mass-Selected Ion Deposition System - Electrospray Source
- Physical Property Management System (PPMS)

FLOW CELLS

- SFTEL: Flow Cell
- SFTEL: Hydraulic Property Apparati
- SFTEL: Pore Scale Micromodels

MASS SPECTROMETRY

Aerosol Particle / Isotopic Elemental

- Laser Ablation Sampling System
- Mass Spectrometer: Aerosol - time-of-flight, high resolution
- Mass Spectrometer: Inductively Coupled Plasma (ICP-MS), High Resolution (Element XR)
- Mass Spectrometer: Inductively Coupled Plasma (ICP-MS), Multi-Collector (Neptune Plus)
- Mass Spectrometer: Inductively Coupled Plasma (ICP-MS), Ultra-High Resolution
- Mass Spectrometer: Linear Ion Trap Quadrupole (LTQ) Orbitrap MS - for environmental research (nanoDESI)
- Mass Spectrometer: Proton Transfer Reaction (PTRMS)
- Mass Spectrometer: Single Particle (SPLAT II)
- Mass-Selected Ion Deposition System – Electro spray Source

Ion Surface

- Mass Spectrometer: FT-ICR, 6T (Ion Surface Collisions)
- Mass Spectrometer: Inductively Coupled Plasma (ICP-MS)
- Mass Spectrometer: Time of Flight Secondary Ion (ToF SIMS) - 1997
- Mass Spectrometer: Time of Flight Secondary Ion (ToF SIMS) – 2007

Imaging

- Mass Spectrometer: MALDI-TOF

Metallomics

- Mass Spectrometer: Inductively Coupled Plasma (ICP-MS) System, Metallomics

Proteomics/Biological

- Mass Spectrometer: Fourier Transform Ion Cyclotron Resonance
- Mass Spectrometer: GC MS
- Mass Spectrometer: Ion Mobility Spectrometry, Time of Flight
- Mass Spectrometer: LC Triple Quadrupole
- Mass Spectrometer: Linear Ion Trap (LTQ)
- Mass Spectrometer: MALDI-TOF
- Mass Spectrometer: Orbitrap

MICROFABRICATION

- Microfabrication Laboratory (Clean Room)
- Microfabrication: Deep Reactive Ion Etching System
- Microfabrication: Mask Aligner
- Microfabrication: Nanoimprinter

MICROSCOPY

Electron

- Electron Microprobe
- Electron Microscope: Dual FIB/SEM (FEI Helios)
- Electron Microscope: Dual FIB/SEM, Environmental (FEI Quanta)
- Electron Microscope: Dual FIB/SEM, Environmental for radiological samples (Quanta)
- Electron Microscope: Photoemission (PEEM)
- Electron Microscope: Transmission, CRYO 2005
- Electron Microscope: Transmission, Dynamic - (*avail. Oct. 2014*)
- Electron Microscope: Transmission, Environmental
- Electron Microscope: Transmission, Liquid Helium, Cryo (JEOL)
- Electron Microscope: Transmission, Radiological (ARM)
- Electron Microscope: Transmission, Scanning

Fluorescence / Optical

- Microscope: Confocal, Multi-Photon/FLIM Integrated
- Microscope: Fluorescence, Single-Molecule
- Microscope: Fluorescence, Single-Molecule /Patch Clamp
- Microscope: Fluorescence, Super Resolution STORM
- Microscope: Fluorescence, Super Resolution Structured Illumination

Ion

- Microscope: Helium Ion

Scanning Probes

- Microscope: Scanning Probe, AFM Compound
- Microscope: Scanning Probe, AFM, Bioscope, Radiological
- Microscope: Scanning Probe, AFM, Geochemistry
- Microscope: Scanning Probe, Dynamic Force
- Microscope: Scanning Probe, Scattering IR SNOM
- Microscope: Scanning Probe, STM/AFM, Low Temperature, UHV
- Microscope: Scanning Probe, STM/AFM, PicoSPM
- Microscope: Scanning Probe, Variable Temperature
- Microscope: Scanning Probe, Variable Temperature UHV

NMR / EPR

EPR

- EPR Spectrometer: High Field (W-band, 95 GHz) – (High Field)
- EPR Spectrometer: Pulsed/CW (X-band, 9.5 GHz) – (Low Field)
- EPR Spectrometer: CW (X-band, 9.5 GHz, for radiological samples) – (Rad)

High-Resolution Liquids

- NMR Spectrometer: 600-MHz NB Varian Inova - Cryoprobe (Liquids) - (Baker)
- NMR Spectrometer: 600-MHz NB Varian NMR System - metabolomics cryoprobe (Liquids) - (Hood)
- NMR Spectrometer: 750 MHz (17.6 Tesla) WB Bruker (Liquids, Solids, Imaging) - (Bokan)
- NMR Spectrometer: 750-MHz (17.6 Tesla) NB Varian - (Rainier)
- NMR Spectrometer: 800-MHz (18.8 Tesla) Varian Cryoprobe (Liquids) - (Denali)

Imaging

- NMR Spectrometer: 500-MHz WB Bruker (Imaging) - (Bastiat)
- NMR Spectrometer: 750 MHz (17.6 Tesla) WB Bruker (Liquids, Solids, Imaging) - (Bokan)

Solid-State

- NMR Spectrometer: 100-Mhz (2.35 Tesla) WB Tecmag (Solids) - (Thorium)
- NMR Spectrometer: 300-MHz (7.05 Tesla) WB Varian NMR System (Solids) - (Mazama) – (*subscribed through Sept. 2014*)
- NMR Spectrometer: 500-MHz (11.7 Tesla) WB Agilent (Solids) - (Shasta) – (*subscribed through Sept. 2014*)
- NMR Spectrometer: 600-MHz NB Varian NMR System (Solids) - (Nittany) – (*Limited Time Available*)
- NMR Spectrometer: 750 MHz (17.6 Tesla) WB Bruker (Liquids, Solids, Imaging) - (Bokan)
- NMR Spectrometer: 850-MHz (20 Tesla) WB Varian (Solids) - (Ellis) – (*subscribed through Sept. 2014*)

SPECTROSCOPY / SPECTROMETRY

Electron

- Catalysis: UHV Model Catalysts, High Pressure
- Electron and Photon Stimulated Desorption (BES 2)
- Electron Spectrometer: HREELS, UHV Surface Chemistry
- Electron Spectrometer: Scanning Multiprobe Surface Analysis System - Versaprobe
- Electron Spectrometer: Scanning XPS Microprobe, High Resolution (Quantera)
- Electron Spectrometer: XPS Imaging
- Electron Spectrometer: XPS with Laser Interface
- Photoelectron Spectrometer: X-Ray, High Sensitivity (for radiological samples)
- Photoelectron Spectroscopy: Low Temperature

Fluorescence

- Spectrometer: Fluorescence, Cryogenic
- Spectroscopy: Fluorescence, Time-resolved
- Spectrometer: Fluorimeter
- Spectrometer: Fluorescence, Picosecond

Ion/Molecular Beam

- Mass Spectrometer: Time of Flight Secondary Ion (ToF SIMS) - 1997
- Mass Spectrometer: Time of Flight Secondary Ion (ToF SIMS) – 2007
- Molecular Beam Kinetics
- Spectrometer: Atom Probe
- Spectrometer: High Spatial Resolution Secondary Ion Mass Spectrometry (NanoSIMS)

Mössbauer

- Spectrometer: Mössbauer

Optical

- Spectrometer: Circular Dichroism
- Spectrometer: Stopped-Flow, Absorbance, BioLOGIC SFM-400
- Spectrometer: Sum Frequency/Second Harmonic Generation, Femto-Picosecond, High Resolution, Ultrafast Dynamics
- Spectrometer: Sum Frequency/Second Harmonic Generation, Picosecond, Surface Spectroscopy

Vibrational

- Atmospheric Pressure Reactor System
- Energetic Processes (Surfaces/Solids) Instrumentation w/Lasers
- Spectrometer: FTIR - standard
- Spectrometer: Raman/Epifluorescence, Inverted Confocal
- Transient Kinetic Analysis (TKA)

X-RAY DIFFRACTION AND TOMOGRAPHY

- X-ray Computed Tomography
- X-ray Diffraction: Four-Circle
- X-ray Diffraction: General Purpose
- X-ray Diffraction: Microbeam
- X-ray Diffraction: Special Applications