THE OHIO STATE UNIVERSITY

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July 21, 2023

W. Randy Smith
Vice Provost for Academic Programs
Office of Academic Affairs
The Ohio State University

Dear Randy:

We are writing to request that the NSF National eXtreme Ultrafast Science (NeXUS) Facility at The Ohio State University receive provisional status as a University Center. This designation is required in September 2023 to facilitate submission of an NSF proposal for Operations and Maintenance of the NeXUS Facility as described below.

NeXUS is a first-of-its kind ultrafast laser facility in the US. The unique capabilities and international visibility of this facility are establishing Ohio State as a global leader in ultrafast science. Construction of the NeXUS Facility is currently supported by a $10M infrastructure grant from NSF. Another proposal has been invited by NSF and is currently in preparation that will extend NSF support for Operations and Maintenance (O&M) of NeXUS as a national, open access user facility on Ohio State's campus. This O&M proposal will be submitted to NSF in September 2023. The combination of attosecond pulses, XUV and soft x-ray photon energies, and high repetition rate at NeXUS will enable measurements that currently cannot be made anywhere else in the US. Accordingly, NeXUS is designed to fill a strategic gap in the US research infrastructure and forms the basis for a synergistic partnership between NSF and Ohio State, which establishes the university as a national leader in ultrafast, high intensity laser science.

The mission of NeXUS is inherently multidisciplinary and transcends the boundaries of traditional academic units. NeXUS has an obligation to serve the broader user community by providing access to unique-in-the-nation capabilities in ultrafast science regardless of the user's institution or scientific discipline. By NSF mandate, NeXUS is to be a nationally accessible user facility whose primary objective is to increase the global competitiveness of the US research landscape. To protect this unique mission, the Enterprise for Research, Innovation and Knowledge (ERIK) will provide management of the NeXUS Facility as an interdisciplinary Ohio State research center assuming there is support from multiple colleges and alignment with the University's research strategy.

Designation of NeXUS as a University level Center is required to 1) enable NeXUS to fulfill its unique mission that transcends traditional research boundaries, 2) demonstrate to NSF a strong level of Ohio State support for this facility, which will be necessary to secure funding for long-term Operations & Maintenance of the facility, and 3) provide a direct line of communication and reporting between the NeXUS Facility director and ERIK for successful management and oversite of this interdisciplinary research facility. For reference, the NSF pre-proposal for NeXUS O&M is attached below. As shown, this includes a 5-year NSF budget request ranging from $9.3M to $11.2M, including between $3.3M and $3.8M in indirect costs.

THE OHIO STATE UNIVERSITY

Thank you very much for your support of this effort. We look forward to working together on this important project, which will benefit researchers from numerous departments and colleges across the university as well as significantly strengthen Ohio State's role as a global leader in ultrafast science.

Sincerely,

DocuSigned by:
L. Robert Baker
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L. Robert Baker
Professor, Department of Chemistry and Biochemistry
PI and Co-Director, NSF NeXUS

I, Peter Mohler, am supportive of this application for NSF National eXtreme Ultrafast Science (NeXUS) Facility at The Ohio State University to receive provisional status as a University Center.

DocuSigned by:
Peter John Mohler
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Peter Mohler
Interim Executive Vice President for Research, Innovation and Knowledge
Vice President for Research

NSF NeXUS Operations & Maintenance Plan

NSF NeXUS Scientific Motivation and Impact

In 2019 the NSF announced funding for the National eXtreme Ultrafast Science Facility (NeXUS). The impact of this investment promises to have a transformative effect on chemistry, physics, materials science, and engineering. The need to control energy and information transport at the scale of individual atoms and electrons is required to enable new technologies for solar energy conversion and quantum information processing. However, these goals can never be realized without the ability to directly observe the underlying dynamics on the relevant scales of time and space. This calls for putting techniques capable of attosecond to femtosecond time resolution and angstrom spatial resolution into the hands of a broad user community.

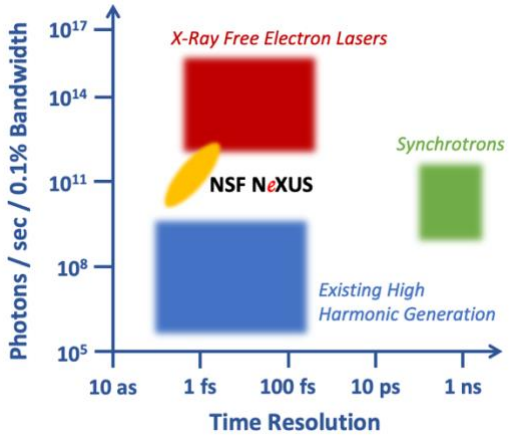

Figure 1. *Photon flux and accessible time resolution for existing XUV and x-ray sources compared with the NSF NeXUS Facility. NeXUS bridges the gap between tabletop sources and x-ray free electron lasers.*

The NSF's mid-scale infrastructure investment in the NeXUS Facility responds to this challenge by transforming the research landscape in the US, providing broad user access to cutting-edge ultrafast XUV technology while strengthening US competitiveness on the international stage. NeXUS was established by the first round of NSF mid-scale investments and is the first mid-scale facility in the Chemistry Division. Until recently, research in ultrafast, high-intensity laser science in the US has lagged behind strategic investments in Europe and Asia. However, this situation is now changing rapidly thanks to federal investments like the NSF mid-scale research infrastructure program. NeXUS translates newly developed, high average power laser technology into high flux XUV/soft x-ray ultrafast sources. The light is delivered to a suite of beamlines/end-stations, enabling a breadth of cross-cutting science. In essence, the mid-scale NeXUS Facility is bridging the gap between tabletop light sources and large-scale facilities, e.g., x-ray free electron lasers (see Figure 1). The capabilities offered by NeXUS are beyond the scope of the single PI, while still providing a more flexible, accessible, and economical solution to meet users' needs. The nimbleness of NeXUS will not only bridge the gap, but create a new paradigm for nation-wide scientific impact. Consequently, NeXUS fulfills the scientific vision for the mid-scale research infrastructure program as first envisioned in NSF's 10 Big Ideas: Put unique-in-the-world research capabilities into the hands of a large number of users from diverse research communities. As evidenced by the tremendous community-wide response to NeXUS, this promised impact will soon be realized through the open-access operation of the NSF NeXUS Facility.

This white paper puts forward a plan for NeXUS Operations & Maintenance (O&M) that will ensure the success of this NSF investment by maximizing the community-wide impact of this facility. Of key importance is the ability to support a dynamic, open-access user program that will level the playing field by providing researchers from a range of institutions and diverse fields access to the most advanced characterization tools for studying ultrafast dynamics in molecules and materials. The net result of this O&M program will be to facilitate convergence research where chemistry, physics, materials science, and engineering share a common need addressed by the NeXUS Facility.

Community Engagement and NSF Divisional Overlap

In 2020 the NeXUS team hosted a 2-day (July 30-31, 2020) user workshop. This event attracted the participation of >200 individuals from 75 institutions and 13 countries, documenting the tremendous interest in this facility by the future user community. On the second day of the workshop, topical breakout

sessions featured 27 short proposal talks by external participants on "Killer Applications" of the NeXUS Facility. To highlight the impact of NeXUS across scientific disciplines sponsored by various NSF divisions, Table 1 shows the number of NSF grants awarded per division to the 27 presenters in the "Killer Application" breakout sessions. None of these presenters were from OSU. As these numbers show, NeXUS capabilities are attracting users from chemistry, materials, physics, and engineering.

Table 1. *NSF grants awarded per division to the 27 external presenters at the NeXUS user workshop.*

NSF Support for User-Proposed NeXUS Applications	
# Grants	NSF Divisions
56	CHE
21	DMR
15	PHY
15	ENG (ECCS, CMMI, CBET)

At the heart of the NeXUS Facility is a new technology in high average power, ultrafast lasers that enables the generation of XUV light with custom properties tailored to each of four experimental characterization end-stations. The complementary capabilities of these end-stations target specific scientific applications spanning each of these NSF divisions. Table 2 summarizes the user-proposed scientific applications organized by NeXUS end-station, and connects these applications to the corresponding NSF programs, highlighting the diversity of research supported at NeXUS.

Table 2. *User-proposed scientific applications of NeXUS organized by experimental end-station, showing the relationship of each end-station to relevant NSF programs.*

NeXUS End-Station	User-Proposed Research Topics	Related NSF Programs
Ultrafast X-Ray Absorption	▪ Photo-induced interfacial charge transfer ▪ Identifying short-lived catalytic intermediates ▪ Light-driven magnetic transitions ▪ Non-linear x-ray optics ▪ Quantum entangled x-ray sources	**CHE:** CAT, CSDM-A/B, CMI, CLP **CBET:** CPS **PHY:** QIS
Ultrafast Angle-Resolved Photoemission	▪ Electron dynamics in topological quantum materials ▪ Charge transport in 2-dimensional materials ▪ Dynamics of spin-momentum locked surface states ▪ Time-resolved photoelectron holography	**CHE:** CSDM-A/B, CMI **DMR:** CMP, EPM, SSMC **ECCS:** EPMD
Ultrafast Scanning Tunneling Microscopy	▪ Charge and spin dynamics at quantum point defects ▪ Dynamics of Skyrmions ▪ Spatio-temporally resolved magnetic fluctuations ▪ Chiral-induced spin selectivity	**CHE:** CAT, CSDM-A/B, CMI **DMR:** CMP, EPM, SSMC **PHY:** QIS
Atto-Science / Laser-Induced Electron Diffraction	▪ Wavepacket imaging in atoms and molecules ▪ Attosecond dynamics of exchange interactions ▪ Molecular movies of photo-induced reactions ▪ Probing limits of the Franck-Condon approximation	**CHE:** CSDM-A/B **PHY:** AMO-E/T, Plasma

Facility Users and Access Model

The NeXUS Facility will operate as an open-access user facility. All facility design decisions have focused on engaging future users and delivering a facility that will provide researchers with significant value through access to unique-in-the-US research capabilities. This section describes our vision for how NeXUS will serve the user community through a competitive, peer-reviewed, open-access model. This open access model is selected based on 1) comparison to existing light sources in the US and abroad, 2) feedback from future NeXUS users, the NeXUS External Advisory Board, and the NeXUS User Committee Chair, and 3) a thorough O&M cost analysis described below.

Beginning at the time of proposal preparation, the NeXUS team has carefully evaluated feasible cost structures for facility O&M. Stakeholders who have informed this process include the NeXUS External Advisory Board, the NeXUS User Committee, and the NeXUS User Workshop participants. The consistent feedback from these stakeholders is that a competitive, no-cost user access model is an essential component for successful light source facility operation. Under this model, users will propose experiments through a competitive, peer-reviewed process, and successful applicants will be awarded facility time at no charge to

the users. However, users will be responsible for the cost of preparing their experiment, traveling to the facility, and lodging during experiments. Throughout this process, users will receive support from NeXUS staff in proposal submission; arranging travel and lodging; completing required safety training; access to secure onsite office space; preparing and completing planned experiments; and analyzing and interpreting experimental data. Similar open-access models are in place at all other light source facilities (synchrotrons, XFELS, and high intensity lasers) both in the US and internationally.

Operation of the NeXUS Facility on an alternative, cost-recovery model would not only preclude users from small or undergraduate institutions, but cost analysis reveals that a cost recovery model is not financially viable. Consistent with the designation as mid-scale research infrastructure, NeXUS O&M costs are significantly less than a large facility, but beyond the reach of individual users funded by single PI grants. Therefore, the success of NeXUS will hinge on sponsor support of O&M costs.

Broader Impacts

We are committed to ensuring that the NeXUS Facility contributes to broad societal benefits, taking full advantage of the state-of-the-art experimental and technology capabilities provided by the Facility and its staff. First and foremost, these broader impacts will be realized by facilitating a diverse national user community who utilizes the Facility. Based on the strong community response to the NeXUS project, we anticipate that this facility will quickly become oversubscribed, and we are seeking creative, cost-effective ways to maximize user access during O&M. The NeXUS Facility will serve as a catalyst, accelerating and extending the reach of researchers around the world, and will facilitate convergence research by serving as a focal point of interdisciplinary collaboration and community-building across NSF divisions. The capabilities provided by this first-in-the-US light source will also facilitate interactions between academic, national laboratory, and industry users as described below. We will track this area of impact through user surveys and by building a publication database. From the experience of similar facilities, we estimate an average of 1.5 publications per outside experiment, equating to approximately 30 publications per year.

The NeXUS team will work to recruit and support a diverse group of users with regards to scientific specialty, experience level, race, gender, and institution size. We plan to provide travel awards to increase facility access to early-career researchers, underrepresented researchers, and users from small institutions. We have and will continue to ensure that undergraduate and minority serving institutions are represented on our External Advisory Board and User Committee to provide us with guidance on successfully supporting these researchers. We will conduct outreach at a range of technical conferences to engage multiple research communities. We will offer short courses and tutorials that introduce the NeXUS capabilities to researchers, with the goal of enabling them to submit strong proposals for Facility use.

To facilitate student recruitment and workforce training, NeXUS will partner with one of Ohio State's successful research experience for undergraduate (REU) programs to serve as an REU host site. NeXUS has already initiated a collaboration with the Center for Energy Research and Technology at North Carolina A&T State University, one of the top ranked HBCU institutions in the US, for the planned recruitment of REU applicants. NeXUS will also benefit from OSU designation as a primary site for both ACS and APS Bridge programs, which increase the number of chemistry and physics PhDs awarded to underrepresented students (identified as Black, Latinx, and Indigenous) by creating sustainable transition programs.

Owing to the unique capabilities of the high average power laser at the heart of the NeXUS Facility, NeXUS also offers enormous potential for industry engagement in the areas of advanced laser manufacturing, high-intensity optics, and novel detectors. Early efforts by the NeXUS team to engage industry have met with an enthusiastic response. The Ohio State University Center for Design and Manufacturing Excellence (CDME) has proposed to serve as a bridge to local and state-wide industry for the recruitment of a NeXUS Industry Advisory Board. This board will be tasked with identifying the most impactful opportunities for NeXUS-industry collaboration. As an example, NeXUS PIs recently participated in a site visit to LSP Technologies, a local business with expertise in laser shock peening. Until recently, laser peening with femtosecond pulses has been limited by the lack of ultrafast lasers with sufficiently high average power for practical applications, and LSP Technologies has expressed strong interest in a collaboration with NeXUS to explore this emerging area. Our team is also collaborating with

Sydor Technologies for the testing of an advanced XUV sCMOS camera with fast readout capabilities uniquely suited to high flux systems such as NeXUS.

Lastly, we will utilize NeXUS as a platform to engage and educate the broader public in Columbus, Ohio and the surrounding mid-west region about the opportunities enabled by ultrafast, high intensity laser science and engineering. These efforts will be conducted in collaboration with the Zettawatt Equivalent Ultrashort pulse laser System (ZEUS) at the University of Michigan. Together, these two NSF mid-scale facilities are creating a center of strength in the US around ultrafast, high intensity laser research. These joint NeXUS/ZEUS outreach efforts will focus on exciting students at all levels about optical science and engineering. To accomplish this, we plan to engage with existing initiatives such Ohio State's STEAM Factory, Columbus's COSI (Center of Science and Industry), and Ohio's STEM Learning Network as well as similar initiatives in Michigan and beyond.

O&M Support Plan

We have developed a 5-year ramp-up plan for NeXUS O&M that builds on the expertise and capabilities developed during the construction phase and adds scientific, technical, and administrative staff to support full-scale, phase-1 user operations. The first year is designed to overlap with the implementation project such that key new hires are made and trained, operating plans finalized, and a transition from the development team to the O&M team occurs. By the second year, the facility will be supporting user experiments for 65% (31 weeks) of the operational year (48 weeks per year). Our base plan is to operate the Facility for 10 hours per day, 5 days per week (10/5). In addition, we have identified an opportunity to expand NeXUS operation in years 4 and 5 to operate 24 hours per day, 4 days per week (24/4). This expansion would nearly double the number of available hours for user experiments. Our research with users and other facilities indicates there is a high desire and significant benefit to these extended hours for experiments. Below we outline the required staff and associated budget for these two models of operation.

At the NeXUS Facility, 31 weeks per operational year (65%) are dedicated to user studies. The remaining time will be used to perform preventative maintenance; conduct non-competitive, discretionary studies that advance the capabilities of the facility and the staff; and allow for limited down time. For the NeXUS staff, an average of 75% of their time will directly support users, and the remaining will be dedicated to maintaining the NeXUS system, sustaining their professional expertise and development, and supporting broader impacts. The staff will work in shifts to ensure that qualified staff members are available at the laboratory during all user campaigns. Staff will also support users during proposal preparation, proposal evaluation, experiment planning, and data analysis. The staff positions are described in Table 3.

Table 3. *Staff positions and descriptions required for O&M.*

Position	Description
Director & Deputy Director	Ohio State faculty. Leads the Facility and reports to external stakeholders. Receives salary supported for one summer month.
Facility Manager	Ohio State administrative staff. Oversees all Facility administrative operations. Implements and oversees proposal review, user scheduling, hosted events, and financial administration. Supervises Technicians, Leads and Administrative Assistants.
Operations Lead	Ohio State research staff. Oversees all System operations, including user experiments. A scientific or engineering expert able to directly support System operation, System maintenance, and user experiments. Supervises Scientists and Technicians.
Laser Lead	Ohio State research staff. Oversees all laser and XUV generation, operation, and maintenance required to support user campaigns. An expert in laser physics also responsible for incorporating advances in laser systems. Supervises Technicians.
End Station Scientists (2)	Ohio State research staff. Operates and maintains at least one beamline and end station. Supports users as they plan, execute, and interpret their experiments.
Technicians (3-5)	Ohio State staff. Operates and maintains the NeXUS system and Facility. Specializes in a key area—electrical engineering, optics, software, information technology, etc.—and develops skills to support users by operating the NeXUS system.
Administrative Assistants (1-2)	Ohio State staff. Supports the administration of the Facility. Provides support to the Facility staff, committee members and Users.

Table 4 provides a breakdown of personnel expenses to the overall budget estimate, and Table 5 summarizes the other contributors to the total O&M budget under both the 10/5 and 24/4 modes of operation. Staff support is the largest contributor to the overall budget, and equipment maintenance is the second highest cost contributor. In addition to operation expenses, we have budgeted to support a proposal review process, education and outreach, user diversity initiatives, and an annual user meeting hosted by the Facility. Note that the first year of O&M represents a critical transition from the implementation project, which already provides year 1 support for the Operations and Laser Leads.

Table 4. *Number of staff per category and direct personnel expenses (salary and benefits) in the first five years of O&M. The cost of increasing the operating hours is presented, in purple text, as an option.*

Category	Year 1	2	3	4	5
Director	1 ($19k)	1 ($19k)	1 ($20k)	1 ($20k)	1 ($21k)
Deputy Director	1 ($19k)	1 ($19k)	1 ($20k)	1 ($20k)	1 ($21k)
Facility Manager	0.75 ($118k)	1 ($161k)	1 ($164k)	1 ($167k)	1 ($171k)
Operations Lead	-	1 ($161k)	1 ($164k)	1 ($167k)	1 ($171k)
Laser Lead	-	1 ($161k)	1 ($164k)	1 ($167k)	1 ($171k)
Scientists	0.75 ($109k)	2 ($295k)	2 ($301k)	2 ($307k)	2 ($313k)
Technicians	1.5 ($138k)	2 ($188k)	3 ($287k) +1 ($96k)	3 (293k) +2 (195k)	3 ($299k) +2 (199k)
Admin. Assistants	0.75 ($54k)	1 ($74k)	1 ($75k)	1 ($77k) +1 ($77k)	1 ($78k) +1 (78k)
Direct Total	**$457k**	**$1,078k**	**$1,196k**	**$1,220k**	**$1,244k**
24/4 Option	**+ $0**	**+ $0**	**+ $96k**	**+ $272k**	**+ $278k**

Table 5. *Estimated expenses in the first five years of O&M. The cost of increasing the operating hours in Years 4 and 5 from 10/5 to 24/4 is presented, in purple text, as an option.*

Expense	Year 1	2	3	4	5	Total
Personnel	$457k	$1,078k	$1,196k + $96k	$1,220k + $272k	$1,244k + $278k	$5,195k + $646k
Operating Consumables	$0	$20k	$20k + $10k	$20k + $20k	$20k + $20k	$80k + $50k
Maintenance	$0	$100k	$100k + $20k	$100k + $40k	$100k + $40k	$400k + $100k
Travel	$8k	$8k	$8k + $2k	$8k + $2k	$8k + $2k	$40k + $6k
Outreach & Diversity	$15k	$55k	$55k + $10k	$55k + $10k	$55k + $10k	$235k + $30k
Proposal Review	$15k	$15k	$15k + $15k	$15k + $15k	$15k + $15k	$75k + $45k
Equipment	$0	$0	$0 + $250k	$0 + $250k	$0	$0 + $500k
Direct Total	$495k	$1,276k	$1,394k + $403k	$1,418 + $609k	$1,442k + $365k	$6,025k + $1,377k
F&A	$277k	$712k	$772k + $77k	$785k + $193k	$799k + $196k	$3,346k + $466k
Total Estimated Cost **24/4 Option**	**$772k** **+ $0**	**$1,988k** **+ $0**	**$2,166k** **+ $480k**	**$2,204k** **+ $802k**	**$2,241k** **+ $561k**	**$9,371k** **+ $1,843k**

Appendix A: User Facilities Comparison

The development of this plan, and our analysis of an effective operational strategy, has incorporated information from several sources: prospective user feedback, the NeXUS external advisory board, Ohio State administration and practices, site visit reviews, and public information about similar user facilities. We recognize that these user facilities may be highly similar to NeXUS in many respects while diverging in others. We gathered information about multiple facilities in an effort to understand the variations in approach depending on user needs and expectations. Table A1 provides a comparison of key characteristics among these facilities. The information presented has been gathered from public sources, primarily from the facilities' websites and government award records.

ChemMatCARS "operates three experimental stations in the areas of advanced small-molecule crystallography, liquid surface and interface scattering, and small to wide-angle scattering at the Advanced Photon Source (APS), the premier undulator-based synchrotron source of high-brilliance high-energy x-rays in the U.S.A." ChemMatCARS was an addition to an existing large-scale facility, the APS. The scope of the ChemMatCARS construction project was similar to a mid-scale. ChemMatCARS neither constructed nor operates the source of its "light"; instead, the APS is operated and maintained by staff supported by the Department of Energy (DOE). During its O&M, ChemMatCARS derives significant benefit from that large facility in that it does not employ full-time staff to support its information technology or engineering needs. ChemMatCARS was constructed in 1996 with NSF support, has received continuous O&M support from NSF, and received a 2019 award to expand its capabilities with a second beamline. ChemMatCARS shares many goals and characteristics with NeXUS and is a model that has provided guidance for us.

Zettawatt-Equivalent Ultrashort Pulse Laser System (ZEUS) at the University of Michigan is a mid-scale facility currently under construction and funded for O&M starting in 2021. "The NSF ZEUS Facility will operate the most powerful laser in the US and will provide unique and world-leading capabilities for scientific research." ZEUS received an NSF mid-scale award for construction in 2019. Because ZEUS is just beginning its transition to O&M, some details of its operating plans are not yet public.

The **Ion Cyclotron Resonance (ICR)** facility at the National High Magnetic Field Laboratory (MagLAB) is a multi-site facility operating and maintaining world-class instrumentation for Fourier Transform-ICR mass spectrometry analysis. The ICR was an addition to the existing MagLAB facility. The ICR was constructed with NSF support in 1994-1999, received dedicated O&M support from 1999-2004, and since that has received integrated support as part of the MagLAB. The budgets listed in Table A1 reflect the period of independent funding. In contrast to the other facilities considered, the ICR allows users to conduct experiments without staff present. This is a result of the significantly reduced safety hazards associated with operating the ICR. Unlike NeXUS, ICR does not need to generate light for its experiments.

Linac Coherent Light Source (LCLS) is a free electron laser facility at the SLAC National Accelerator Laboratory. LCLS generates hard x-ray, 1 fs pulses to support dynamics studies. LCLS is arguably a large-scale facility given it originally had a construction budget estimated at $462.8M (2019 dollars), and that construction cost excluded the cost of developing experimental end stations. Unlike NeXUS, LCLS does not generate its experimental light; it only provides the experimental end stations. However, LCLS shares many scientific goals with NeXUS and is a model we have examined for O&M. LCLS was constructed with the support of the DOE in 2009 and has received continuous O&M support from DOE. LCLS recently received support for a major upgrade dubbed LCLS-II and LCLS-II-HE, and the information available regarding this upgrade is included in Table A1.

ELI-ALPS is one of three large-scale facilities in the European Union's Extreme Light Infrastructure (ELI) project. ELI-ALPS aims to provide users with a combination of high photon flux, short wavelengths (EUV and x-ray), and short pulse durations. The mission of ELI-ALPS overlaps strongly with NeXUS: provide both the ultrafast pulsed light and the end stations for experiments. However, ELI-ALPS was constructed from "green space", incorporates multiple light sources, and is in the category of large-scale facilities. The implementation of ELI-ALPS began in 2011 and was scheduled to be completed in 2018.

ELI-ALPS issued its first call for proposals, for user experiments, in the fall of 2021. They report that most, but not all, beamlines and end stations have been verified and validated. The ELI project has been supported by host governments and by EU funding sources.

Table A1. Summary characteristics of O&M for NeXUS (as proposed here) to similar user facilities. End Stations are defined as distinct, Facility operated experimental systems. Dollar values have been inflation adjusted to 2019 dollars (the year of the NeXUS award). Budgets reflect sponsor budgets, and they include direct and indirect expenses.

Facility	# Full Time Staff	User Availability	Fee Structure	Sponsor(s)	Annual O&M Budget	Sponsor Construction Budget	Relative O&M
NeXUS (preliminary proposal)	10-13	10/5 or 24/4 31 wk/year	Free to academic users	NSF (CHE & others)	$2.2 or $2.8M	$9.5M	23% or 29%
ChemMatCars	10	24/7 30 wk/year	Free to academic users	NSF (CHE & DMR)	$2.4M	$10.43M (1st beamline)	23%
ZEUS	21	13/5 30 wk/year	Free to academic users	NSF (MPS)	$5.17M	$16M	32%
ICR @ MagLAB	17	24/7 (8/5 staff support) 52 wk/year	Free to academic users	NSF	$1.84M	$8.63M	21%
LCLS	>48	24/7 30 wk/year	Free to academic users	DOE	$150M	$515.3M	29%
LCLS II	TBD	24/7 TBD	Free to academic users	DOE	$180M projected	$1,300M	14%
ELI ALPS	224 planned	16/5 No info yet on # weeks per year	Free to academic users	ELI ERIC	$25.2M (€22M)	$264.8M (€231.4M)	10%

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To:	Baker, Robert
Cc:	Leite, Fabio; Reed, Katie; Smith, Randy; Mohler, Peter; Horn, David; Olesik, Susan V.; Carnes, Cynthia
Subject:	Proposal to have provisional University Center status for NeXUS Facility
Date:	Thursday, September 7, 2023 11:51:37 AM
Attachments:	image001.png

Robert:

The proposal from the Enterprise for Research, Innovation, and Knowledge to have provisional University Center status for the NSF National eXtreme Ultrafast Science (NeXUS) Facility was approved by the Council on Academic Affairs at its meeting on September 6, 2023. I presented the request on your behalf.

No additional level of internal approval is necessary. This action will be included in the Council's next Annual Activities Report to the University Senate (July 2024).

The presumption is that you will come forward in the months ahead with a formal proposal for a University-level center. I will help you with that process.

Please keep a copy of this message for the file on the proposal and I will do the same for the file in the Office of Academic Affairs.

If you have any questions, please contact me.

Randy

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