Special Notice N00014-23-S-BC08
Special Program Announcement for 2023 Office of Naval Research
Research Opportunity:
Analog Preprocessors and Other Enablers for Wide Band, Universal RF Receivers

I. INTRODUCTION

This announcement describes a technology area, entitled "Analog Preprocessors and Other Enablers for Wide Band, Universal RF Receivers", under the N00014-23-S-B001, Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology which can be found at https://www.onr.navy.mil/work-with-us/funding-opportunities/announcements. The submission of proposals, their evaluation and the placement of research grants and contracts will be carried out as described in the above Long Range Broad Agency Announcement.

The purpose of this announcement is to focus attention of the scientific community on (1) the area to be studied, and (2) the planned timetable for the submission of white papers and full proposals. No industry day or topical workshop is planned for this call.

II. TOPIC DESCRIPTION

The ONR Code 312 portfolio (specifically the portion entitled "Cryogenically Enabled Electronics Technologies for Mixed Signal Systems") seeks proposals appropriate for discovery and invention funding (TRL ≤ 4), for proof of concept, development, and demonstration of individual performance-optimized component technologies, and proof of concept and demonstration of new system architectures relevant to the next generation of universal, wide-band RF receivers. The modular system targeted by this entire ONR program will demonstrate that accurate, complete, and timely situational awareness can be provided to decision makers at the tactical edge. As such, the receiver must operate at its peak performance even when the local environment is contaminated by numerous loud interferers, from virtually any source. This functionality has been desired for generations and broadly encompasses everything from full duplex operation of narrow band comms systems to fully survivable Simultaneous Transmit and Receive (STAR) systems with constant high sensitivity. The required jam and spoof resistant system will consist of a properly sized, architecturally simple, combination of inherently ultra-wideband, software defined components; enabling the receiver to learn and adapt to the current signal environment in real time.

The longer term goal is a universal system, able to deliver any set of EW/Comms functions deployed anywhere in the RF spectrum after appropriate adaptation of the antennas and digital processing back ends to a specific mission and platform. This will result in reduced lifetime costs including logistic costs. Simpler versions of software defined, multi-function systems are already growing in popularity over single function hardware, due in part to the slower obsolescence provided by their adaptability. Going forward, lower logistics and lifetime costs will result from the fact that fewer military unique parts will be required in fewer variants and in larger volumes than achievable with the multitude of single function, tightly integrated, chains that dominate today's legacy systems. Simple, modular architectures are easier to understand, operate, diagnose, repair, and are more affordable to upgrade a few components at a time.

The 3 main functional sections of such a receiver are: A) collection of the signal(s) in a desired electromagnetic spectrum by an antenna structure, any manipulation of that entire signal, and delivery of

that electrical waveform to the digitizing section, B) digitization and management of the raw full spectrum information, and C) Digital Signal Processing that reduces the raw data to actionable information delivered to the user in near real time, whatever the nature of the signals of current interest (SOI). Normally items in sections A and B are included as identical copies, operated in parallel, 1 chain per antenna. In FY23 and this special topic, the main area of interest lies in section A. Work focused on antennas, digitizers, or OEM is not sought at this time. Rather the focus is on components to be located between the antenna balun and the signal digitizer that feeds the DSP. The set of components must be compatible with system architectures that utilize analog over fiber signal transfer over 10s of meters for antenna remoting, electrical antennas and electronic digitizers. The inputs and outputs of the component chains are electrical and analog. Novel heterogeneous integration technology development may be included if essential to proposed circuit demonstrations. However, substantial proposed spending on optimizing the integration of new devices into proven analog over photonic links represents too high a TRL focus for inclusion in this topic call. Truly innovative ideas applicable to other subareas of such universal receivers may be submitted under **Technical Area 4: "Other**".

Introduction: This special topic call seeks proposals to optimize the functionality of analog RF electrical and photonic component technologies without operator intervention, and with negligible added noise. For example, during Simultaneous Transmit and Receive (STAR) operation involving uncooperative transmitters operating out of disjoint transmit antennas, it is necessary that the receiver's operation be unaffected (e.g. not blanked or desensitized) by the uncooperative transmitters. The goal is to deliver continuously to the user the sensitivity that is limited only by the receiver's inherent noise floor, despite the presence of loud signals arriving in the receive antenna. Signals such as co-platform direct path and multi-path propagation, loud jammers, or nearby off-platform transmitters. (No wired reference feed from such transmitters to the assumed receive chain may be assumed available.) Such immunity requires the invention and demonstration of additive, much wider band, Tx/Rx isolation methods than are available today. The needed methods should provide an innovative organic (based on the physics inherent in the materials/device structure) form of clutter-automatic gain control. In a frequency based approach, TA2 below, the need can be described as thresholded, preferential attenuation of the subbands occupied by loud signals. This is required in order to avoid front-end destruction/unrecoverable saturation during multiple high amplitude RF spikes (EMI) or unexpected CW loud signals wherever they occur in the ingest bandwidth of the receiver. In an angle of arrival based approach, TA3, all the loud signals are attenuated due to null beam steering onto their point of origin. Crucially, in frequency subbands (TA2) or spatial arrival directions (TA3) where no such loud signals exist, the proposed solution should have little to no effect on the total receive signal. TA1 focuses on an especially critical photonic component of wide expected utility.

In all TA, the proposed work shall include experimental validation as well as simulation and theoretical arguments. To qualify as Discovery and Innovations, the ideas proposed shall be based on recently understood materials science and device physics or innovative circuit architectures. The research and development proposed should primarily begin at the TRL2 levels of maturity and progress through TRL3 by the program's end. This topic assumes that the content of high power signals is rarely of interest and detailed analysis of signals received at power levels likely to damage or saturate the receiver is rarely critical or urgent. If such detailed analysis is needed, it can be calculated via post digitization equalization or in subsystems not included here. Inversely, the details of the smaller signals are usually of interest and typically need to be preserved.

All the proposals here should focus on critical signal chains subcomponents designed to yield a reduction in the total received signal dynamic range. Optimization of their performance by whatever physics works and at whatever temperature that physics requires is the end goal. Devices and architectures that would work only or best at cryogenic temperatures and/or low optical power are especially sought and should describe their expected operating temperature/optical power dependences. In TA1 and 2, approaches that rely on simultaneous control of multiple collective modes relevant to solid state, lithographically produced microelectronics samples, e.g. phonons in PICs, are especially welcome.

Notice that TA2 seeks phenomena which treat large signals nonlinearly and small ones linearly. The clarity with which the proposer's concepts are explained and used to motivate the work plan will be important in the selection process. Success of the proposed work should thus provide a path, through future further optimization and heterogeneous integration, to substantially improved signal sensitivity/performance analog preprocessing systems useful in ultra-wideband universal receivers that are effectively subjected to jamming.

If a particular research plan is applicable to multiple TAs, disjoint proposals should be submitted which each address only one TA. Multiple proposals led by one performer are acceptable, but multiple awards for overlapping work are unlikely.

Technical area 1 (TA1): Low noise figure, high survivability and dynamic range approaches to energy efficient, wide band electro-optic modulators.

Objective: Such an Electrical Optical Modulator (EOM) is required for any saturation immune chain to realize the desired photonic antenna remoting system functionality. Indeed, all wideband versions of the survivable optical fiber antenna remoting schemes focused on here and exclusively photonic receivers using conventional antennas require the total analog RF signal supplied on a nominal 50 ohm electrical cable/connector to be mixed onto the photonic carrier(s) without risking hardware destruction due to unpredictable, low duty cycle RF oversaturation events anywhere in the ingest bandwidth. This functionality is notionally most directly addressed by efforts to achieve extremely low RF power, high speed EOMs. Notionally used with balanced OEM reception and without any LNA present, the desired performance should include a contribution from the EOM to front end noise performance under 3 dB, RF ingest bandwidths of >20 GHz including hundreds of unpredictable power, simultaneous signals, and spur free dynamic range of more than 116 dB. RF destruction thresholds should exceed 10W. (Photodetector proposals are out of scope in TA1.) This problem requires very strong RF to photonic coupling, especially since small size, PIC realization will be required before actual system integration and should be planned for from the onset. A requirement for high optical power is also undesirable from a wall plug efficiency point of view, though power as high as a few 100 milliwatts may initially be unavoidable. Recent published work on "low Vpi" thin film LiNbO3, physically small cavity lasers/micro-ring resonators, photonic crystals, and devices with strongly coupled material layers all appear potentially relevant. Other classes of devices may also be proposed. Proposers addressing this problem should be especially mindful of concurrent government funding opportunities at different TRL levels and be sure their proposal is properly aimed.

Technical area 2 (TA2): Low noise-figure approaches to single antenna receiver front-ends that include RF Photonics and simultaneously offer survivability, continuous sensitivity, and wide ingest bandwidth.

TA2 requires the invention and demonstration of a new or multi-device hardware architecture in which above-threshold loud signals produce frequency dependent reference signals which then cause attenuation at only the frequencies of the loud signals prior to sending the total analog signal to the receiver digitizer. This intentionally non-linear device must achieve its signal-power-dependent selective reduction of the loudest signals with minimal to no damage to the remainder of the signal mix. This is necessary to avoid unacceptable reduction in system accuracy, sensitivity, and signal dynamic range. To be maximally useful, the TA2 goals must be achievable with much smaller (ideally 0 dB) reductions in the power in spectrally overlapping, smaller simultaneous signals and certainly without adding substantial noise/intermodulation distortions anywhere in the >20 GHz wide ingest spectrum. Proposals shall discuss in detail the system concept and performance determining factors. The power threshold of this desired effective frequency selective clipping/notch filtering must be adjustable (at least at the circuit fabrication stage) to trigger the effect over a substantial frequency and power range of input "loud" signal powers. The component trigger-point requires adjustment from -50 dBm to 20 dBm at the threshold level of performance, while the objective level requires a span of 100 dB. The threshold prediction of loud signal

suppression relative to small signals in single devices under TA2 should be in excess of 30 dB. The objective program goal is 60 dB. The stretch goal is 90 dB.

Current methods (>TRL4) which utilize spin wave production in ferrites at high RF input powers to produce signal power dependent, frequency notch filters provide a proof of the concept that such methods are feasible. However, they typically have excessively high noise floors, hard to adjust thresholds, fixed notch shape, and narrow instantaneous ingest bandwidths. The response/turn-on time of the non-linear response to over threshold signals should be sub-nanosecond; the turn-off time ideal is ns. Such a rapid response appears to require the effect to be based on inherent, non-bolometric materials physics, not a priori system knowledge of the loud signals or to be possible only after long latency cueing information arrives from a separate receive subsystem. The multiple concerning loud signals must not be required to be predefined and may themselves be inherently either narrow (MHz or less) or wide band (up to 10 GHz) and distributed over the entire system input bandwidth. Testing with 4 simultaneous loud signals is expected before the funded programs end.

Ideas for achieving coverage of the majority of the militarily relevant spectrum, for example 0.1 MHz to 40 GHz, in a single, possibly layered, device are of especial interest if the devices are not individually useful across such ultra-wide bands. How the minimum frequency span of any notch can be adjusted from MHz to KHz and how the shape of the notch can be predictively defined/calibrated so as to allow proper equalization and restitching of signals spanning the notch edges in the digital post-processor needs to be described in the proposal and proven possible in the proposed work. Because the intended application is in a wideband, inherently coherent wideband receiver, any uncompensated time delay mismatch across the RF spectrum will spoil the ultimate accuracy of the system's spectral response. Hence it is desirable that such delay mismatches not exceed a number like 5 ps over the entire ingest band. The absolute latency involved in the selective reduction process will be an important component performance metric. Proposers should be careful to define both their concept's starting and expected post award maturity, how much maturation advancement is proposed for each subcomponent, and provide a technical risks/mitigation table.

Heretofore undemonstrated concept methods of achieving these performance goals may be proposed to TA2, including methods dependent on photonic or electronic material effects. Indeed, early TRL2 work optimizing the materials and device geometry of undemonstrated concepts are appropriate, particularly if the concept holds the possibility of substantial physical size reduction or increased energy efficiency of a proven concept. Devices that should work only or best at cryogenic temperatures and/or low optical power are welcome and should describe their expected operating temperature/optical power dependences in the proposal. Receiver architectures requiring 2 or more distinct antennas belong in Technical Area 3, not 2.

Technical area 3 (TA3): Multi-antenna/front end receive chain concepts for achieving STAR survivability and continuous sensitivity

The focus here is on inherently near real time, adaptive signal combining techniques whereby selective amplitude reduction of the loud signals relative to the small is achieved utilizing the assumption that the small signals and loud signals are arriving from different directions. The approach imagined is of a SIMO sort, not MIMO, as there is no plan to alter the transmit signals, only the architecture of the receiver. Proposers should notice this call is related to spatial multiplexing as well as blind adaptive null steering. Approaches that combine analog, mixed signal, and digital components into a complex chain can be proposed so long as the architecture is innovative and both the input and output are in the analog domain. In these cases for cost reasons, improvements over the current state of the art of the multiple components to be combined or their packaging should be proposed only if essential to demonstrating the desired chain functionality. In particular, the eventual requirement of getting the total pre-processed signal (whether analog or digital) onto an optical carrier for transport to a remoted signal processing system should rely on already C(G)OTS available approaches. Similarly, work to improve the state of the art in digitizing systems and heterogeneous integration in photonic or electrical domain are excluded from this technical area. Standard CMOS processors such as COTS CPU, FPGA and GPU are preferred over

new ASICS. Efforts focused only on new, more survivable LNA architectures that could produce significantly wider band linear gain without distortions or noise will be viewed as incomplete and likely beyond the TRL levels of this call. Improved EOM modulators belong under TA1.

Rather, the main focus in TA3 should be on demonstrating an adaptively learning system which implements a form (by program's end) of current signal environment driven, independent component analysis that holds antenna pattern nulls formed in the analog domain on each of the loud signal sources. The latency associated with the null steering response to new or blinking loud signals is a major performance criteria. Experimental demonstrations with 1 null formed from 2 antennae are sufficient as an early goal, but the relationship of the number of antennae to the degree of nulling achieved in a single direction and how multiple nulls should be distributed across a set of spatially separated jammers should be discussed in the proposal and explored, by at least simulation, within the effort. The initial beamforming coefficients may be assumed to be set via an initial calibration implemented to eliminate own platform self-interference. Some issues include, how and how often to adapt the real time weight and phase/time delay production elements, how frequently these weights will need to be adapted based on the rate of change in the angle of arrival of the loudest signals, and system tolerance for down-time. Another issue is how to sense if a null beam has walked off its target versus the system responding to loud signals changing their parameters. What will be the system bandwidth consequences of the choice between phase and true time of arrival based beam forming? Comments on how the proposed system will interact with new hardware or architecturally based ways to assign picosecond absolute accuracy time of arrival tags to SOI in widely different spectral sub-bands, if they are in fact simultaneously received at the antenna, will be of interest, especially if the use of true time delay beam forming is included.

Technical Area 4 (TA4): Other critical enablers of higher circuit density and hermetic packages of currently low density microelectronics technologies

Other types of component development, identified as a critical enablers of potentially 10X higher circuit density/lower SWaP rugged RF relevant components are; hermetic packaging of both below room temperature or moisture/vibration sensitive electronics and photonics and 3D packaging. The latter shall enable packaging of both homogeneous and heterogeneous technologies of similar micron and larger inherent length scales, not a focus on spanning a wide gap in diverse technology length scales.

Indeed, the 3D focus is on packaging of large area requiring microelectronics technologies (including low frequency analog electronics and photonics (SiP and SiN as well as more exotic photonic materials)) as vertical stacks of chips which are then utilized as tall composite discretes. 3D packaging of same technology size scale components via vertical functional connections through the supporting substrates provide a means of reducing the package areal requirements linearly in the number of layers included, decreasing the difficulty of including area challenged technologies into heterogeneous systems. Such vertical connections will allow cost efficient whole wafer processing of the individual component devices. They also can eliminate the need for individual connections such as conventional photonic fiber connectors which degrade when subject to intense vibration or high curvature, individually adjusted, hence fragile and high touch labor (expensive), low yield photonic stack edge wire bonds using fibers. In principle, high aspect ratio holes thru the substrates, notionally related to the > TRL4 Thru-Silicon Vias (TSV) used in commercial CMOS, can be backfilled with electrical conductors optimized for specific impedances, photonic transport materials, optimized thermal conductors, or even magnetic shielding materials. Hence, such x-TSVs can in principle play a role in vertical temperature control as required for all in-vacuum assemblies where convective cooling does not exist. In many military contexts, a hermetic environment is required to prevent deleterious introduction of air constituents, including dust and condensation as well as when components run at different temperatures. Hence even if only isothermal applications are planned, advances are needed in electrical and thermal connections between stacked prefinished devices, likely still on their own handle wafers. Progress on such x-TSVs and fan out/connectorization immediately before/after can also be utilized to produce compact, high signal throughput vacuum wall (hermetic) feed throughs. Among the metrics of quality of signal propagation through such a long x-TSV are polarization preservation for photonic links and electrical cross talk.

Proposed work must include demonstrations of operational functionality, but not include refinement of already > TRL4 packaging concepts such as liquid or spray cooling. Similarly, work on yield improvement of established technologies, especially those including conventional CMOS, is excluded as beyond D&I in character.

Additional topics recognized as potentially of interest include: additional PIC photonic cladding layer choices to reduce photon escape and channel phonons during mode conversion/flow between heterogeneous materials, waveguide couplings or compact waveguide cross-overs; high density connectors compatible with established room temperature industrial standards, but addressing issues like differential thermal expansion (e.g. in the aiming of arrays of fiber to waveguide interfaces at cryogenic temperatures); and electrical/photonic cross talk in isothermal cabling and vacuum feed-throughs at extreme microwave or short wavelength optical frequencies. Proposal tasks to improve cryogenic digitizers or DACS, high rate deserializers, or conventional functionality digital or mixed signal processors, realized in any technology, will not be funded via this special topic call in FY23.

III. WHITE PAPER SUBMISSION

Although not required, white papers are strongly encouraged for all offerors seeking funding. Each white paper will be evaluated by the Government to determine whether the technology advancement proposed appears to be of particular value to the Department of the Navy. Initial Government evaluations and feedback will be issued via e-mail notification from the Technical Point of Contact. The initial white paper appraisal is intended to give entities a sense of whether their concepts are likely to be funded.

Detailed Full Proposal (Technical and Cost volumes) will be subsequently encouraged from those Offerors whose proposed technologies have been identified through the above referenced e-mail as being of "particular value" to the Government. However, any such encouragement does not assure a subsequent award. Full Proposals may also be submitted by any offeror whose white paper was not identified as being of particular value to the Government or any offeror who did not submit a white paper.

For white papers that propose efforts that are considered of particular value to the Navy but either exceed available budgets or contain certain tasks or applications that are not desired by the Navy, ONR may suggest a full proposal with reduced effort to fit within expected available budgets or an effort that refocuses the tasks or application of the technology to maximize the benefit to the Navy.

White papers should not exceed 5 single-sided pages, exclusive of cover page, references, and resume of principal investigator, and should be in 12-point Times New Roman font with margins not less than one inch. White papers shall be in Adobe PDF format or in Microsoft Word format compatible with at least Microsoft Word 2016.

The cover page should be labeled "White Paper for ONR 2023 Research Opportunity: "Analog Preprocessors and Other Enablers for Wide Band, Universal RF Receivers" and include the following information: title of the proposed effort, technical point of contact, telephone number, and e-mail address.

The 5-page body of the white paper should include the following information:

(1) Principal Investigator;
(2) Relevance of the proposed effort to the research areas described in Section II;
(3) Technical objective of the proposed effort;
(4) Technical approach that will be pursued to meet the objective;
(5) A summary of recent relevant technical breakthroughs;
(6) A brief program plan and schedule summary with a one year base period and option years for continuing the effort; and

(6) A funding plan showing requested funding per fiscal year.

For this special topic call, items 3 and 4 should together occupy at least 2.5 pages. The resume of the principal investigator should not to exceed 1 page and should highlight information relevant to this topic call.

To ensure full, timely consideration for funding, white papers should be submitted **no later than noon Mon June 5 2023**. White papers received after that date will be considered as time and availability of funding permit.

ONR evaluations of the white papers will be issued via email notification on or about 14 July, 2023 if it is decided that no oral presentations are required.

IV. ORAL PRESENTATIONS

ONR may request that Project Managers (PMs)/Principal Investigators (PIs) provide an expanded oral presentation from those Offerors whose proposed technologies have been identified as being of "particular value" to ONR. The purpose of the oral presentation is to provide greater detail than can be contained in the White Paper and to permit the evaluation panel to ask questions to better understand particular aspects of the proposed effort. However, any such request does not assure a subsequent award. Any Offeror whose White Paper technology was not identified as being of "particular value" to ONR will not be invited to make an oral presentation. The requested oral presentations will be scheduled separately. It is conceivable the oral presentations will be virtual and cover white papers submitted to only some of the technical areas. The time, location, and briefing format of the oral presentations, if requested, will be provided at a later date via email notification.

ONR evaluations of the oral presentations will be issued via email notification on or about 19 June 2023 with an intention to schedule before 11 July.

V. FULL PROPOSAL SUBMISSION AND AWARD INFORMATION

Full proposals should be submitted under N00014-23-S-B001 by **9 August 2023**. Earlier submissions would be appreciated and may facilitate earlier start dates, e.g.by Sept 11 for grants and before 15 October for contracts. Full Proposals received after that date will be considered as time and availability of funding permit.

ONR anticipates that both grants and contracts may be issued for this effort, but that grants will predominate. For-profit entities are allowed to propose grants rather than contracts but should realize no grant earns a fee and any resultant patents must allow free government use license. All offerers should notice the requirement of small business subcontracting plans for awards, whether grants or contracts, in excess of $750,000 in planning their work.

Full proposals for contracts should be submitted in accordance with the Appendix 2 of the N00014-23-S-B001. Full proposals for grants should be submitted via Grants.gov in accordance with Appendix 1 of N00014-23-S-B0001.

Technical Proposal/Content shall be single spaced and not exceed 15 pages. The cover page, resumes, bibliographies, and table of contents are excluded from the page count. For contract proposal submission, all submissions should be submitted electronically per section VIII unless submitting a classified proposal. Classified submissions can be mailed.

Full proposals for grants should be submitted in accordance with the instructions at BAA Section IV, Application and Submission Information, item 5, Submission of Grant Proposals through Grants.gov. All full proposals for grants must be submitted through www.grants.gov. The following information must be completed as follows in the SF 424 to ensure that the application is directed to the correct individual for review: Block 4a, Federal Identifier: Enter N00014; Block 4b, Agency Routing Number, Enter the three (3) digit Program Office Code 312) and the Program Officer's name, last name first, in brackets (Van Vechten, Deborah). All attachments to the application should also include this identifier to ensure the proposal and its attachments are received by the appropriate Program Office.

ONR may allocate $4M$/yr for efforts individually costing under $500K/yr related to the Technical Areas in this Special Notice. Tightly focused, single investigator effort around $250k/yr are preferred but may not be adequate to execute technical areas 3 and 4. The period of performance for projects will be three to four (3-4) years. Proposed four year efforts are requested to be structured with a base effort of 18-24 months, followed by an option period. Program reviews will occur at times determined by ONR and happen at least annually. It is anticipated that multiple awards with similar detailed goals and related tasking may be made if diverse approach/performers are involved, but similarly high promise/technical quality efforts are proposed. White papers are strongly encouraged from all offerors seeking funding.

Although ONR expects the above described program plan to be executed, ONR reserves the right to make changes according to program priorities and funding availability.

Selected proposers will be notified in July 2023. Selected projects will have an estimated award date of Sept-Oct, 2023 depending on award type.

VI. SIGNIFICANT DATES AND TIMES

Event	Date	Time
White Paper Submission Date	5 June, 2023	noon Eastern
Notification of White Paper Evaluation*	14 July, 2023	
Oral Presentation - Invitation Only* Virtual format	19 June-11 July, 2023	By individual arrangement
Notification of Oral Presentation* Evaluation	14 July, 2023	
Full Proposal Submission Date	9 August, 2023	5:00pm Eastern
Notification of Selection: Full Proposals *	25 August, 2023	
Awards *	Sept-Oct, 2023	

Note: * These are approximate dates.

VII. POINTS OF CONTACT

In addition to the points of contact listed in N0014-23-S-B001 the specific points of contact for this announcement are listed below:

Technical Points of Contact:
Dr. Deborah Van Vechten, ONR Code 312 Program Officer, Deborah.vanvechten.civ@us.navy.mil

Please copy:
Dr. Stephen R Mathis,

Special Notice N00014-21-S-BC08

E534100 Branch Head, NAWC-WD
stephen.r.mathis.civ@us.navy.mil

Business Point of Contact:
Stephen Hughes, Contracting Officer, stephen.t.hughes.civ@us.navy.mil

VIII. ADDRESS FOR THE SUBMISSION OF WHITE PAPERS AND FULL PROPOSALS FOR CONTRACTS

White Papers/Full Proposal:
Unclassified white papers and full proposals should be submitted electronically to onr.ncr.312.list.fct@navy.mil by noon EST on 5 June,2023 (white paper) and 9 August, 2023 (full proposals). Files exceeding 10MB in size should not be emailed, but instead transmitted via a file transfer service, for example DoD SAFE, https://safe.apps.mil. If you will be using DoD SAFE, please request a Drop-Off link from Dr. Deborah Van Vechten, Deborah.vanvechten.civ@us.navy.mil, at least 5 days prior to the submission deadline.

Classified White Papers/ Full Proposals:
Classified white papers and proposals are not expected under this Special Notice. However, if an offeror feels a classified white paper or proposal is necessary then classified white papers and proposals up to the general service (GENSER) Secret level should be mailed via traceable means, with the outer envelope addressed to the Office of Naval Research, Attn: Document Control Unit, ONR Code 43, 875 N. Randolph St., Arlington, VA 22203-1995. The inside envelope should indicate the classification level and be addressed as: Office of Naval Research, Attn: Dr. Deborah Van Vechten, ONR Code 312, 875 N. Randolph St., Arlington, VA 22203-1995. If you will be mailing a classified white paper or proposal, please send Dr. Deborah Van Vechten, Deborah.vanvechten.civ@us.navy.mil, an unclassified email to notify her of your submission at least 3 days prior to its mailing.

IX. SUBMISSION OF QUESTIONS

Any questions regarding this announcement must be provided to the Technical Points of Contact and/or the Business Point of Contact listed above. All questions shall be submitted in writing by electronic mail.

Answers to questions submitted in response to this Special Notice will be addressed in the form of an Amendment and will be posted to the following web pages:

- Beta.same.gov Webpage –Contract Opportunities – https://beta.sam.gov/
- Grants.gov Webpage – http://www.grants.gov/
- ONR Special Notice Webpage - http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Special-Notices.aspx

Questions regarding **White Papers or Full Proposals** should be submitted NLT two weeks before the dates recommended for receipt of White Papers and/or Full Proposals. Questions after this date may not be answered.