

Center for Biophotonic Sensors and Systems

Center Bylaws

Article I - Introduction

1.1 The following Bylaws will be used to govern the Center for Biophotonic Sensors and Systems, a National Science Foundation (NSF) Industry/University Cooperative Research Center (I/UCRC), under NSF grants number IIP-1068070 and IIP-1068109.

1.2 The Bylaws are approved by the Directors' Board (consisting of the Center Director and the Site Directors for each site) and the Industrial Advisory Board (IAB). The Bylaws can be amended at any time by an affirmative vote of two-thirds of the Directors' Board and final approval by two-thirds of the members of the Industrial Advisory Board.

1.3 The Center for Biophotonic Sensors and Systems (CBSS) is a university consortium comprised of the following affiliated sites (UNIVERSITY AFFILIATES):

Boston University Photonics Center, Boston University, Boston, MA
Center for Biophotonics, University of California at Davis, Sacramento, CA

1.4 The Bylaws form a part of the Membership Agreement with participating Sponsors. If there are any inconsistencies between the Bylaws and the Membership Agreement, the terms and conditions outlined in the Membership Agreement takes precedence over the Bylaws.

Article II - Purpose

Vision Statement

2.1 CBSS will focus on pre-competitive research where photonics provides the enabling technologies for advances in methods to detect/sense and identify biological properties, conditions, or changes at the molecular and cellular/sub-cellular level. Ultimately, we see photonics as a driver for early disease detection, reduction of health care costs, speedier and more effective treatment through personalized care and better patient outcomes.

Mission

2.2 The mission of CBSS is:

- To create a national center of excellence for biosensor research with photonics as the enabling technology.
- To cultivate embryonic applications for biosensors.
- To advance biophotonic sensor technology, providing significant commercial benefits for disease diagnosis, patient monitoring, drug efficacy testing, and food and water safety.

- To develop effective methods for technology translation, accelerating innovative research to commercial benefit.
- To involve the full technology and supply value chain in a common focus of solving critical unmet needs in the healthcare sector using biophotonic sensing solutions.
- Educate future leaders and increase the quantity, quality and diversity of professionals prepared to work in the photonics field.

Research Focus

2.3 CBSS research will be focused on the needs of the industry members and the capabilities of the universities. Generally, the universities will employ research expertise in areas such as: microscopy, spectroscopy, flow cytometry, optical label-free assays, imaging (cellular and tissue), nanoplasmonics, photochemistry, nanomaterials, photonic sources/detectors, endoscopy, DNA sequencing techniques, bio-materials and other areas of biophotonics research to address societal and commercial benefits for disease diagnosis, drug efficacy testing, patient monitoring, and food and water safety.

Article III - Membership

3.1 CBSS membership is open to all corporations, foundations, government agencies, federally funded research & development corporations (FFRDC) and government owned contractor-operated laboratories (all herein referred to as Company(ies)). Membership is also open to international corporations, including those without a US affiliate.

3.2 There will be two classes of membership. A FULL membership is the standard class of membership and has full voting rights and the right to a seat on the IAB, subject to the limitations contained in Section 3.4. An ASSOCIATE member is a restricted membership and will have one-half of Full voting rights and a right to a seat on the IAB, subject to the limitations contained in Section 3.5.

3.3 The Full CBSS membership fees are \$50,000 per year, payable in annual or quarterly installments, and is used to support Center research. Associate membership fees are \$25,000 per year, payable in annual or quarterly installments.

3.3.1 Center operates on a June 30th ending fiscal year, i.e. new projects formulated at the IAB Spring meeting, start in July, and have report-back in December and the following Spring.

3.4 A company may support the Center with more than one membership. An additional membership will entitle that company to a second seat on the Industrial Advisory Board. There is no limit on the level of research funded through additional memberships, however IAB representation will be capped at two seats for all related Full memberships.

- 3.4.1 If a company chooses to fund additional memberships for a specific project, the additional memberships will have no voting rights during the program formulation meeting.
 - 3.4.2 Different divisions or stand-alone business units of a large company are considered separate members and the common corporate affiliation does not factor into the two membership limitation. The two membership limitation still applies within each division or business unit that becomes a member.
- 3.5 An Associate membership will be restricted to those companies that have been members through supplemental SBIR/STTR support or to companies that have less than \$50 million in annual revenue.
- 3.5.1 Companies that had received supplemental SBIR/STTR support may continue as an Associate member for an additional two-year period.
 - 3.5.2 Supplemental SBIR/STTR awardees that wish to remain as Associate members beyond the initial two-year period as well as any other Company requesting Associate membership must have less than \$50 million in annual revenue.
 - 3.5.3 Associate memberships can be converted to Full membership at any quarterly billing cycle.
- 3.6 Membership starts on the date the membership agreement is signed, and continues until the 1-year anniversary date or the projects' annual end date, whichever is later. The membership continues by default in subsequent years, unless a company decides to terminate membership by giving the university 180-day written notice prior to the termination date.
- 3.7 An accountable "in-kind" membership is possible upon approval by the Center Director, all University Site Directors and two-thirds of the IAB. Equipment, supplies and production services are examples of accountable "in-kind" support as long as the support is relevant to the research priorities, fair value can be determined and will be in compliance with OMB A21 and no additional cost contribution (i.e. installing infrastructure for new capital) is required by university or other company members. No more than 75% of a membership fee may be paid as accountable "in-kind" funds, the balance will be as cash.
- 3.7.1 Approval for "in-kind" membership is required on an annual basis.
 - 3.7.2 Only Full memberships will have an option for "in-kind" payment.

Article IV - Organization and Administration

- 4.1 Center Director: The Director is responsible for the overall activities of CBSS, including financial and personnel resources, space, research, and their implementation and will report to the Vice

President of Research at Boston University. The initial Director is Dr. Thomas Bifano of Boston University, who served in that capacity for the initial five years of the Center. The Vice President of Research at Boston University has approval authority for renewing Dr. Bifano's role as Center Director for the Second Five Year Award (Phase II) and the Third Five Year Award (Phase III). The Vice President of Research at Boston University may select a replacement for Dr. Bifano, within NSF guidelines on approval of the University Policy Committee.

- 4.2 The Directors at the Lead University and University Sites will be responsible for Center activities at their university and will report directly to their respective appropriate university administrators and to the Center Director. The Site Directors will provide liaison between the Center and the appropriate academic departments of the member universities. Site Directors are chosen by the participating university subject to approval by the Director's Board
- 4.3 Project Principal Investigators will manage specific research projects funded by the Center and will report directly to the appropriate Site Director, the appropriate university administrators, program management at the lead university and to the member companies supporting the project. Project Principal Investigators will be identified in specific project proposals
- 4.4 Administrative Support Staff. The lead university and each participating university will provide a reasonable level of clerical and accounting support for the operation of the Center.
- 4.5 Although individual members of the Center join the Center through one of the University Sites, there is only one IAB for the Center. The IAB selects a Chairperson for a two year term at the initial IAB meeting and no less than every two years thereafter.
- 4.6 Members paying Full membership fees by cash or approved "in-kind" sponsorship have one representative on the IAB. An organization may have more than one Full membership, within guidelines of Section 3.4, and is entitled to voting representation on the IAB according to Section 3.2 and 3.4. An Associate member on the IAB has voting rights according to Section 3.2.
- 4.7 Both Full and Associate members will participate in the strategic planning of the Center. The IAB will assist the participating faculty in identifying pre-competitive, generic, industry related research problems, recommend research projects, assist in identifying appropriate industrial internship opportunities for graduate students and postdoctoral students, assist the Center Director and Site Directors in identifying new members, review research and educational accomplishments at the Center and recommend restructuring and/or redirecting of on-going programs to meet IAB needs and concerns.
- 4.8 A Center External Evaluator, funded by NSF, will assist the Center Director, Site Directors and the IAB to organize the Center and provide an independent assessment of the operation. The Center External Evaluator will report both to the Director and directly to the I/UCRC Program Manager at NSF. The Center Evaluator is paid a flat fee (currently set by NSF at \$15,000 per year

for a two-site center) which includes all time and expenses for attending meetings and completing the evaluation tasks required by NSF.

- 4.9 University Policy Committee. The CBSS will form an ad-hoc multi-university administrative oversight and policy committee consisting of the Vice President or Provost of Research (or his/her designee) at each university to resolve any and all Center administrative issues such as reviewing academic standards, funding issues, space requirements, equipment requirements, etc. related to the Center. A major role of the committee is to ensure faculty recognition for participation in the Center in tenure and promotion decisions and to ensure that the research is appropriate for graduate education. The committee would be convened at the request of the CBSS Director to resolve issues as necessary.

Article V – Reports

- 5.1 The Center will document and file minutes of IAB meetings with a copy to all attendees and board members.
- 5.2 Each Center Site will provide an annual report and a final report at the end of the five year award to NSF that includes the Director's Report, Evaluator's Report and Certification of Membership from an authorized university official.
- 5.3 The Site Directors and each Project Principal Investigators shall provide project status reports to the Center Director and Center Program Management as necessary, but at a minimum at the end of each quarter and on completion of the respective research projects. These reports will be distributed via the Center web site with email notification as required.
- 5.3.1 A final report will be submitted to the Center Director and posted on the Center web site within thirty (30) days of a project's end date. The project's end date is typically the end of the fiscal year, or other date as agreed to by the IAB and documented in the project's Executive Summary.
- 5.3.2 Each member company will have forty-five (45) days after receipt of the final report to declare in writing to the center director and site director for the project any intention to pursue direct sponsored research on that project, outside of the I/UCRC. Such declaring member(s) and the university site would have an additional sixty days to draft the sponsored research agreements. If more than one declaring member declares an intention to pursue direct sponsored research on a project, such agreements may be finalized separately.
- 5.3.2.1 Sponsored research agreements would include non-disclosure provisions and a "firewall" with respect to any other I/UCRC related research.

5.3.2.2 As a courtesy to other IAB members, on completion of a sponsored research agreement, a high level announcement will be made to the IAB.

5.3.3 Should no member company declare an intention to pursue direct sponsored research within forty-five days or, if declared, fail to execute a sponsored research agreement within an additional sixty days, then the university site is free to engage non-I/UCRC members in research related to that project, provided that the terms of such engagement or agreement is no more favorable to the non-I/UCRC member than those proposed by the university site to any declaring member.

5.3.4 Regardless of a projects status within the I/UCRC, members may negotiate with the appropriate university site licensing on inventions related to a project that have been disclosed prior to a project's funding date.

5.4 The Center Director will issue notices of publication, patent disclosures and copyright registration as necessary to members.

Article VI - Budget

6.1 Each Site Director shall generate detailed operating budgets indicating source of funds and use of funds for their respective Sites.

6.2 Recovery of indirect costs at each university shall be limited to a maximum of 10% of the research project budget. At least 90% of all membership fees will be used to directly support research.

Article VII - Meetings

7.1 The Center Director, Site Directors and the IAB Chairman will establish the schedule of activities and meetings for the Center as well as the agenda for the semiannual research review meetings.

7.2 The participating universities and IAB members for the CBSS will meet twice a year. The participating universities will host the meetings on a rotating basis with the date and location determined at the previous IAB meeting.

7.3 The IAB will meet twice a year to review research results, select projects, review budgets and discuss the strategic plans for the Center. The IAB review meetings will coincide with the semiannual CBSS meetings. A member may send more than one representative to the IAB meetings, but may only have voting representation per paid membership level, in accordance with Section 3.2.

7.4 The University Policy Committee will meet as necessary to discuss and resolve Center program and management issues.

7.5 Center meetings are closed to the public, because of proprietary Center information that will be discussed. Except for the initial IAB meeting, attendance is limited to representatives of member companies; faculty, staff and students of affiliated universities; and the Center Evaluator and other NSF personnel.

7.5.1 In the event a prospective member would like to attend, that organization must sign a non-disclosure agreement and would not participate in IAB voting.

7.5.2 Information presented at meetings will be labeled as "CBSS Proprietary".

Article VIII – Research Project Selection Procedures

8.1 An algorithm for selecting projects will be developed and utilized by the IAB for selections of projects and achieving a consensus around project selection. The algorithm will be based on tools suggested by NSF, recommendations of the Center Evaluator and experiences of the IAB and Center Director, while providing an opportunity for diversity of projects.

8.2 A CBSS research project will require consensus support of Center members in order to optimize the value of pooling membership fees for research. Selection of projects will be voted on by IAB members using algorithms as determined in 8.1 and adopted by two-thirds of the IAB.

8.3 All Center members may participate in the selection and evaluation of research projects. Individual organizations, including divisions or business units of a larger corporation, may acquire up to two Center memberships, and therefore will have a corresponding number of voting representatives on the IAB.

8.4 Typically, individual members will propose general industry-oriented research topics of interest to their organization, also reflected in the Technology Roadmap developed by the IAB. A portfolio of relevant research topics will be compiled based on the interest of the members. These research topics will be posted on the password protected member section of the Center web site and will form the basis for cooperative discussions among the faculty and the members. Each participating university will develop a set of pre-proposals consistent with the goals of their group, the interests of the members, and the mission of the Center. The pre-proposals will be posted on the Center web site prior to the IAB meeting. At the research review meeting, faculty/student teams will further elaborate on their proposals and discuss with IAB members.

8.5 The Center Director in consultation with the Directors' Board and the IAB, may raise concerns related to the alignment of research projects to the Center's mission, goals and roadmap. The IAB in negotiation with the Director's Board should attempt to rectify such concerns.

8.6 Ultimately, the IAB will consider all inputs and after review will decide on all research activities funded.

Article IX – Intellectual Property Policies

9.1 The University will hold title to any patents or copyrights generated through research activities conducted at that CBSS site, according to the Bayh-Dole Act. In the event that one or more inventors or creators are employees at different university sites or industrial members, then such Sites or Members are co-owners of the invention or copyright.

9.2 Except where specifically excluded, the results of research at each University Site will be made equally available without condition and restriction on use to all Member Companies.

9.3 Members will have the right to exercise a non-exclusive, royalty-free (NERF) license on inventions that were originated in research funded via IAB membership fees.

9.3.1 A company qualifies to exercise the NERF if a paying member, current on dues, at the time of notice.

9.3.2 After university has filed a provisional patent, university sites will provide notice of availability to license patents.

9.3.3 Members have ninety (90) days from notice to elect to take license. Notice shall be in writing and delivered by certified mail.

9.3.3.1 No response indicates no intention from the Member Company to license the patent.

9.3.4 Notice of patent license availability and elections to take license will be further summarized and documented in the minutes of the next center meeting.

9.3.5 If any member takes a NERF license, then the university agrees not to license to a non-CBSS member for a period of one-year from the end of the election period.

9.3.6 Members exercising the right to license would agree to pay their pro-rated share of fees related to filing and maintaining the patent.

9.3 If there is only one member desiring to exercise the right to a license, then that member may choose to negotiate an exclusive license with the university site. The exclusive license may be fee bearing with terms negotiated between member and university site.

Article X - Publication

10.1 Prepublication manuscripts and notices related to IP actions will be distributed for action as required by the center membership agreement.

Article XI – New University Affiliates and Industrial Members

11.1 From time to time, new universities may request to join CBSS as an additional center site. Each new university requesting to join shall initially obtain concurrence from the Center Director, Site Directors, the IAB, and the I/UCRC program manager at NSF prior to submitting a “Letter of Intent” to join CBSS. Universities requesting to join as a new site must demonstrate their ability to perform synergistic research within the focused research areas of the Center and their willingness to work within the structure, policies and procedures of CBSS. Upon concurrence by the Center, the new university requesting to join as a new site may then continue application per the applicable procedures of the current NSF I/UCRC program solicitation.

11.1.1 Each new university needs to meet the minimum requirements of industry membership to support their site. The new industry members must be new members to CBSS and recruitment of members from existing sites will not be permitted unless that company funds an additional membership.

11.2 A new university requesting to join CBSS shall review their research objectives and program plans, and obtain and submit with their Planning Grant Proposal a “Letter of Support” from the Center Director and from the IAB.

11.3 From time to time, new companies, corporations or organizations may request, or be requested, to join a university site of CBSS as a new member. These new companies, corporations or organizations may join CBSS upon signing of the existing Membership Agreement, acceptance of current Bylaws and payment of the first installment of annual membership fees. Application of these new membership fees shall be made to existing research programs at the affiliated site unless a new “interim” research program is otherwise approved by the Center Director, Site Director and the Chairman of the IAB. The “interim” research program is restricted to the first year of membership for full members. Status reports, budgets and results would be available to the full membership and continued funding of the “interim” research program is subject to full IAB approval under the terms of these Bylaws.

Article XII – Center Status

12.1 CBSS shall remain as a NSF endorsed Center by meeting NSF requirements as outlined in the current NSF I/UCRC program solicitation. Subsequent five year extensions, referred to as Phase II and Phase III awards, may extend the Center under NSF endorsement up to fifteen years. Thereafter, the Center may continue as a “graduated Center”.