

Nanosystems Engineering Research Center
for
Nanotechnology Enabled Water Treatment Systems
(NEWT)

Industry/Practitioner Membership Program

February 29, 2020

BACKGROUND

The National Science Foundation (NSF) has provided funding in support of education and research for the NSF Nanosystems Engineering Research Center for Off-Grid Nanotechnology Enabled Water Treatment (NEWT) to Rice University (Rice) in Houston, Texas; Arizona State University, in Tempe, Arizona; the University of Texas at El Paso in El Paso, Texas; and Yale University in New Haven, Connecticut. Collectively, the four universities shall be called the “Academic Members.” In conjunction with the research activities under the NEWT Program, Rice has created this Industry/Practitioner Membership Program (“Program”) to facilitate the implementation of NEWT. This Program shall consist of three levels of membership: Full Member, Associate Member and Practitioner Member which shall collectively be called “Industry Members.”

NEWT is a unique resource for its Industry Members, providing a collaborative environment whereby the educational and research expertise of all Industry Members can be leveraged to develop next-generation affordable, mobile, modular, high-performance water treatment systems enabled by nanotechnology. Systems will be compact, energy efficient with the option of solar power, and adaptable to varying source water quality to meet the growing industrial and societal needs for off-grid water supply and reuse.

NEWT’s mission is articulated in its strategic plans for research, university education, pre-college education, industrial collaboration and the innovation ecosystem, and infrastructure including diversity. NSF guidelines will apply to Intellectual Property (as defined in the Intellectual Property Management Plan) conceived or developed in the performance of the NSF funded projects, and Academic Members will be granted non-exclusive, royalty-free licenses for internal (non-commercial) research and Full and Associate Members can exercise an option to negotiate an exclusive or non-exclusive, revenue bearing license on terms to be determined, as explained in the NEWT Intellectual Property Management Plan. After the expiration of the applicable option periods for Full and Associate Members, available Intellectual Property shall be placed in a pool of technology available to Practitioner Members as well as companies not participating in NEWT.

To help accomplish NEWT’s mission, this Program has been established to create a culture of innovation and a mechanism for translating ideas from university research into professional practice. Industry Members’ guidance and active participation will help NEWT to realize its mission.

MEMBERSHIP ELIGIBILITY AND GOALS

Membership in the Program is open to corporations, companies, partnerships, sole proprietorships, utilities or any other legally recognized business entity, or any water agency or hospital, that agrees to support NEWT's mission and the goals of its Program and makes its annual membership contribution. The goal of the Program is to facilitate:

- Active participation in advancing NEWT research through an innovation ecosystem;
- Providing guidance on strategic planning and research;
- Serving on the Industry/Practitioner Advisory Board (IPAB) that analyzes NEWT activities;
- Providing insight into real-world challenges associated with new technologies; and
- Contributing cash and in-kind resources to research.

MEMBERSHIP FEES and RESPONSIBILITIES

The fee for Industry Members participating in the Program comprises a contribution as defined below. In addition, appropriate interactions with NEWT administration and researchers to help NEWT accomplish its mission are required. The interaction with NEWT may include visits to Academic Members' campuses by Industry Member representatives, visits to Industry Members' facilities by faculty and students of the Academic Members, and discussions at professional society meetings or conferences. Industry Members, during visits to Academic Members' campuses, can work on mutually agreed upon research projects, mentor students, learn specialized techniques, and give special seminars. It is expected that during the course of their stay, they will develop strong interactions with NEWT researchers.

Industry Member responsibilities include:

- Meet as a group of Industry/Practitioner Advisory Board (IPAB) participants twice a year with NEWT researchers during semi-annual reviews;
- Provide advice and recommendations on developing the strategic plan;
- Review overall progress against strategic goals;
- Critique the progress and direction of research thrusts, including an annual Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis;
- Discuss the strategic plan and suggest potential modifications based on research results;
- Review and suggest potential changes to the education efforts;
- Engage in joint research and experimental test beds to validate NEWT research results in practical applications;
- Assist in translating NEWT research results through commercial implementation; and
- Recommend industry speakers for workshops and seminars to promote the mission of NEWT.

Industry Members are entitled to the following NEWT membership benefits:

- Early access to NEWT research products such as reports, papers, and other publications originated by faculty and researchers of the Academic Members prior to dissemination to the general public. Early access may include papers in publication, annual reports, poster research briefs, and discussions with faculty and students.
- Data and information resulting from NEWT research will be shared with Industry Members and Academic Members, and such Industry Members and Academic Members may utilize and disclose such data and information within the conduct of their normal business. Academic Members retain the first right to publish the results of NEWT research.

- Industry Members will have access to facilities and instrumentation utilized in NEWT research, but such access is subject to any requirements or limitations of the organization whose facilities and instrumentation are being accessed. These arrangements shall be decided on a case-by-case basis to advance NEWT research and accelerate innovation.
- Industry Members may request on-location short courses to be provided by the Academic Members at fees to be negotiated between the Academic Members and Industry Members to cover costs.
- Industry Members will have access to the NEWT web site, which comprises an electronic information network maintained by the Academic Members for timely exchange of information, e.g., accepted or submitted papers or working drafts as appropriate, annual progress reports, and created knowledge base of research advances.
- Industry Members who wish to support a particular NEWT research thrust or topic above the level of their annual membership fee may do so by providing such funding support directly to an Academic Member under a separate agreement or arrangement.

The annual membership fee is defined in the table below. The Center Director may, in consultation with NEWT’s IPAB Executive Committee, make recommendations to change the membership structure, however, no change to such structure may be implemented without the approval of all Academic Members.

Membership Level	Level of Support	Type of Organization	Privileges of Membership*
Full Member	>500 full-time employees: \$25,000 cash 50-499 full-time employees: \$15,000 cash <50 full-time employees: \$5,000 cash	For-profit companies interested in development of and access to Intellectual Property	<ul style="list-style-type: none"> • Voting member of IPAB • Option to negotiate an exclusive or nonexclusive revenue-bearing license in a field of use to Intellectual Property funded by NEWT for commercial purposes.
Associate Member	\$8,000 cash plus in-kind contribution equivalent to \$2,000 or more	For-profit companies that contribute important engineering and design expertise to NEWT research and that are interested in development of and access to Intellectual Property	<ul style="list-style-type: none"> • Non-voting member of IPAB • Option to negotiate an exclusive or nonexclusive revenue-bearing license in a field of use to Intellectual Property funded by NEWT for commercial purposes, to the extent such license is available after any Full Member negotiations.
Practitioner Member	\$10,000 in-kind	Water agencies, hospitals	<ul style="list-style-type: none"> • Non-voting member of IPAB

*Privileges of membership are only available to Full, Associate and Practitioner Members during years when the Industry Member has paid its membership fee in full.

Notwithstanding any license resulting from a negotiation entered as a privilege of membership, Academic Members shall each have a royalty-free, irrevocable, non-exclusive license to use Intellectual Property developed under NEWT (Core IP) in the conduct of research and for their own research, including sponsored research, and educational purposes.

The option period for licenses for members at each level of membership shall each be as outlined in the Intellectual Property Management Plan.

After March 31, 2020, the term for new memberships will begin on the date Rice received a signed NEWT membership form or, for Full and Associate Members, the date Rice received the applicable cash payment for membership, whichever date is later. January 1st of each calendar year will continue to mark the beginning of the term for annual memberships obtained on or prior to March 31, 2020. Membership will renew automatically at the same level on each yearly anniversary of a member's respective membership term start date. Annual renewal payments are due no later than thirty days from such yearly anniversary of the membership term start date. All payments for new and renewal memberships are non-refundable. If an Industry Member would like to change the level of membership or not renew membership for the next membership year, Industry Member must notify the ILO in writing within sixty days prior to the end of Industry Member's current membership year.

Checks shall be made payable to: William Marsh Rice University

Checks shall be mailed to:

Dr. Matt Hotze
Administrative Director
NEWT Center, 264 Mechanical Lab
William Marsh Rice University
6100 Main Street, MS-6398
Houston, TX 77005-1892

Payment must be in US dollars

Electronic wire payments, including any wire transfer fees, shall be made as follows:

Wire to: JPMorgan Chase Bank
712 Main St.
Houston, TX 77002
ABA #: 021000021
SWIFT Code: CHASUS33
For Credit to: William Marsh Rice University Funding Account
Acct #: 101418847
Reference: wires_ach@rice.edu NEWT
Bank Contact: Carol McDonald (713) 216-5822

Note the underline between "wires" and "ach" (wires_ach@rice.edu)

Payment must be in US dollars

Electronic automated clearing house (ACH) payments, including any ACH fees, shall be made as follows:

ACH to: JPMorgan Chase Bank, N.A.
Houston, Texas
ABA #: 111000614
Acct #: 101418847
Reference: wires_ach@rice.edu NEWT
Acct Name: William Marsh Rice University-Funding Account
Bank Contact: Carol McDonald (713) 216-5822

Note the underline between “wires” and “ach” (wires_ach@rice.edu)

Payment must be in US dollars

All educational, research, and other programs and administrative activities of NEWT will be conducted with shared resources from contributions by Industry Members and other sources, as long as expenditures from these pools are appropriate for the establishment and operation of NEWT.

MANAGEMENT OF INTELLECTUAL PROPERTY

An Intellectual Property Management Plan (IPMP) has been developed to manage Core IP. The IPMP addresses protection, licensing, and dissemination of Intellectual Property resulting from the NEWT Award, operating within the framework established by the Bayh-Dole Act (35 U.S.C. § 200 et seq.), federal patent and copyright laws, state laws, institutional and corporate policies, and the terms of relevant grants.

The IPMP objectives include:

- Promoting rapid dissemination of information in technology arising from the NEWT activities;
- Interacting productively with Academic Members;
- Sharing unique research resources and making such resources broadly available to the NEWT research community for research purposes; and
- Promoting patenting and licensing when the public benefit is best served by commercializing inventions and/or by providing the economic rewards necessary to encourage industry to make the investment or as required to move technologies to the market or to utilize the NEWT technology within their business operations.

Inventorship of Intellectual Property resulting from NEWT will be determined in accordance with applicable U.S. patent and copyright laws and ownership shall follow inventorship. Each inventing party shall determine whether to retain title pursuant to 35 U.S.C. 200 et seq to Core IP developed solely by employees or students of the inventing party. Core IP developed jointly by employees and/or students of more than one party shall be jointly owned by the inventing parties; each owner will have an undivided interest in the same.

Each Owner of Background Intellectual Property, as defined in the Intellectual Property Management Plan, reserves all legal rights in its Background Intellectual Property for all purposes.

Rice, as the prime recipient of the NEWT Award, will oversee implementation of the IPMP and will collaborate with the other Academic Members to:

- Monitor disclosure, patenting, and licensing activity with respect to Core IP;
- Seek, as needed, potential third-party licensees for Core IP;
- Resolve disputes;
- Discuss, when needed, the strategy for patenting and licensing; and
- Facilitate timely and accurate reporting of disclosures, patents, and licenses for Core IP to the Academic Members and NSF.

NEWT researchers of the Academic Members will make reasonable and good faith efforts to:

- Inform, on a periodic basis, faculty, staff, and students involved in NEWT that the research is to serve the public benefit and encourage publication and prompt disclosure of developments and potential inventions;
- Identify documents and share the existence of any identified Background Intellectual Property or any existing contractual agreements that may affect rights in Core IP;
- Disclose and evaluate Core IP and Background Intellectual Property, and facilitate dissemination of the Core IP for the greater public good; and
- Identify the availability of Core IP for licensing to NEWT Industry Members.

GENERAL PROVISIONS

Industry Members shall not use the name of NEWT or the name or any service marks, trademarks, logos or other marks of any Academic Member in any advertising or promotional material without the specific prior written consent of Rice (in the case of NEWT) and the specific Academic Member. The Academic Members shall not use the name or any service marks, trademarks, logos or other marks of any Industry Member without the specific prior written consent of such Industry Member. A general exception is hereby granted to Industry Members to use the name of NEWT and to cite the fact that NEWT is operated by Rice in written advertising and other promotional materials provided that: (1) such use is limited to describing the Industry Member's relationship to NEWT as herein defined, (2) such use does not imply any endorsements by NEWT or any Academic Members of Industry Members' products or other commercial activities, and (3) such use does not represent that a partnership, joint venture, or other legal entity has been formed between and among the parties to this Agreement.

The Academic Members make no representations or warranties of any kind, express or implied, concerning the results of the NEWT research program, Core IP or any Intellectual Property, including, but not limited to, representations and warranties as to non-infringement, merchantability and fitness for any particular purpose.

Academic Members shall not be liable for any incidental, consequential, special or other economic damages, such as loss of anticipated business or profits, suffered by any other party in connection with NEWT, the research program or the Intellectual Property, including, but not limited to, any use or commercialization thereof.

Each Industry Member shall release and indemnify the Academic Members from and for any liabilities or damages resulting from such Industry Member's use of the results of the NEWT

research program, Core IP, or any related intellectual property, whether arising at law or in equity and whether under contract, tort or strict liability principles.

This Program is governed by, the laws of the United States and the laws of the State of Texas (without regard to the conflicts or choice of law principles thereof). Industry Members irrevocably consent to the jurisdiction of the State of Texas, and agree that any court of competent jurisdiction sitting in Harris County, Texas, shall be an appropriate and convenient place of venue to resolve any dispute with respect to this Program.

Industry Members shall be responsible for complying with any applicable U.S. Government Laws, including U.S. export control laws. All rights granted to Industry Members in connection with NEWT and the Program are subject to compliance with U.S. laws and regulations controlling the export of technical data, computer software, laboratory prototypes and other commodities. Industry Members shall not, directly or indirectly, export any such controlled commodities in connection with NEWT and the Program unless the required authorization and/or license is obtained from the proper governmental authorities prior to export. Academic Members do not represent that an export authorization and/or license will not be necessary or, if necessary, that such authorization and/or license will be granted.

Intellectual Property Management Plan

February 29, 2020

Nanosystems Engineering Research Center

Ownership and Management of NEWT Intellectual Property

This Nanosystems Engineering Research Center (NERC) Intellectual Property Management Plan (IPMP) is established to manage the Intellectual Property resulting from the NSF Nanosystems Engineering Research Center for Nanotechnology Enabled Water Treatment Systems (NEWT). NEWT is a unique resource for its Industry Members, providing a collaborative environment whereby the educational and research expertise of all Industry Members can be leveraged to develop next-generation affordable, mobile, modular, high-performance water treatment systems enabled by nanotechnology.

This NERC IPMP addresses the ownership, patenting and licensing of the Intellectual Property resulting from NEWT.

Responsibilities of the Lead University

As the Lead University, Rice University will manage this IPMP and shall be responsible for reporting the Intellectual Property resulting from Core Research Projects (Core IP) to the National Science Foundation as required by the ERC award.

Definitions

Background Intellectual Property means Intellectual Property developed before, or independent of, the NEWT Award, whereby NEWT researchers who are performing a Core Research Project are named inventors of the Intellectual Property and for which a license to the Intellectual Property is necessary in order to practice Core Intellectual Property.

Core Intellectual Property (Core IP) means Intellectual Property resulting from a Core Research Project.

Core Research Project means research projects funded through the use of NEWT NSF funds and/or Industry Member fees.

Intellectual Property means any patentable technical information, inventions, developments, discoveries, methods, techniques, formulae, algorithms, processes, data and databases and patentable or copyrightable software.

Project Intellectual Property means Intellectual Property resulting from restricted funds that flow through the ERC or flow directly to a principal investigator through a sponsored research agreement.

Ownership

All inventions constituting Core IP that are created solely by investigators from a single Academic Member will be owned solely by the investigators' home institution, pursuant to Chapter 18 of Title 35 of the United States Code, commonly called the Bayh-Dole Act, subject to march-in rights as set forth in the Act. All inventions constituting Core IP that are created by

investigators from two or more of the Academic Members shall be jointly owned by the inventing Academic Members with each party owning an undivided interest in such joint invention. All inventions constituting Core IP that are created by investigators from one or more of the Academic Member(s) and one or more Industry Member(s) shall be jointly owned by the inventing Academic Member(s) and Industry Member(s), with each party owning an undivided interest in such joint invention.

Each Academic Member shall have intellectual property assignments from its investigators sufficient to permit the Academic Members to abide by this ERC IPMP and to grant the rights and licenses set forth herein.

Invention Reporting of Core IP

Investigators from Academic Members who create an invention resulting from a Core Research Project shall promptly disclose each invention to their respective technology transfer/licensing office and such office shall, within ten (10) days of receipt of such disclosure, report such invention using the form included in this IPMP, including providing a copy of the invention disclosure, to the NEWT Industrial Liaison Officer (ILO).

Within thirty (30) days of receipt of an invention disclosure, the ILO shall disseminate the invention disclosure to the Industry Members and the Industry/Practitioner Advisory Board (IPAB). All invention disclosures shall be kept confidential, in accordance with the Bylaws, by all parties receiving such disclosures and shall not be used or disclosed to third parties without the written permission of the disclosing party.

Intellectual Property Filing Requests

Within sixty (60) days of receipt of an invention disclosure by the IPAB, any Full or Associate Member may request the filing of intellectual property protections and shall provide with the request the nature of such protections desired (e.g., provisional patent application, US utility patent application, etc.). Intellectual property filing requests will be communicated to the IPAB and the ILO who will submit the requests to the inventing Academic Member's technology transfer office. Should the inventing Academic Member(s) pursue intellectual property protections as requested by Full and/or Associate Members, such protections shall be procured using attorneys engaged by the inventing Academic Member. Furthermore, and subject to the procedures specified in this IPMP, Full and/or Associate Members making the request shall share all expenses for intellectual property protections so procured. In the case of joint inventions, the inventing Academic Members will enter into an Inter-Institutional Agreement (IIA) to manage the patent filing and licensing activities. If the terms of an IIA cannot be agreed to within ninety (90) days, the inventing Academic Members shall inform the NEWT Center Director who shall initiate steps to facilitate a resolution. With respect to intellectual property protections filed at the request, and shared cost and expense, of Full and/or Associate Members, the inventing Academic Member(s) shall keep such requesting Industry Members informed of all developments related thereto and shall promptly supply to those Industry Members copies of all papers received and filed in connection with the prosecution thereof.

All patent applications filed on Core IP must identify the NSF award as the source of funding.

Within ninety (90) days of receipt of a Core IP disclosure, an Industry Member requesting intellectual property protection (as specified above) that has no interest in certain jurisdiction(s) for which another Industry Member has requested intellectual property protection shall provide written notice to the Academic Member managing the subject Core IP that it will not share in costs relating to such jurisdiction(s). In the event said Industry

Member provides such written notice, such Industry Member shall have no rights under NEWT to the subject Core IP in the jurisdiction(s) for which notice was provided.

Any Industry Member requesting intellectual property protections shall pay costs for such protections as invoiced by the inventing Academic Member responsible for managing the subject Core IP. Such Industry Member shall have no rights or licenses under NEWT to inventions covered by intellectual property protections for which costs have not been paid as invoiced. Moreover, should such Industry Member not pay, as invoiced, costs for requested intellectual property protections, inventing Academic Member(s) may pursue such protections on their own, and at the expense of the inventing Academic Member(s) (provided protection costs have not been assumed by any other Industry Member(s) having rights to the subject Core IP protection). In the event of such pursuit of protection by Academic Member(s), the non-paying Industry Member shall not have any right or license to the subject Core IP.

Should financial support provided by one or more Industry Members for intellectual property protections covering an invention in a given jurisdiction be discontinued and not assumed by all other cost-sharing Industry Members applicable for the jurisdiction, inventing Academic Member(s) may pursue such protections in such jurisdiction on their own and at the expense of the inventing Academic Member(s). If financial support is not fully provided for intellectual property protections in a given jurisdiction, Industry Members shall have no further rights under NEWT to the subject Core IP for such jurisdiction.

In the event no Full or Associate Member requests intellectual property protection for disclosed Core IP as specified in this IPMP, no Industry Member shall have rights to the subject Core IP and inventing Academic Member(s) may pursue such protections on their own and at their sole expense.

Mechanics of Licensing and Option Periods

Within thirty (30) days after the filing of intellectual property protection for Core IP as requested by Full and/or Associate Members, the ILO shall notify all Academic Members and NEWT Full and Associate Members of such Core IP that is available for licensing. Full Members that requested intellectual property protection for such Core IP shall have a total of one hundred eighty (180) days from the date of such notification ("Full Member Option Period") to: (1) inform the ILO in writing of such Full Member's interest in negotiating either an exclusive or non-exclusive revenue-bearing license for the Core IP in a field of use, and (2) negotiate such license. Written notification of license negotiation interest shall be provided by the Full Member to the ILO within the first sixty (60) days of the Full Member Option Period ("Full Member Notification Period"). A copy of any Full Member written notification of a desire to negotiate shall be provided by the notifying Full Member to Academic Members that are sole or co-owners of the Core IP of interest. The ILO shall promptly inform the other requesting Full Members that another requesting Full Member has expressed an interest in license negotiation. Each Full Member who has notified the ILO and inventing Academic Members during the Full Member Notification Period of its interest in licensing Core IP shall have a term extending from the end of the Full Member Notification Period to the expiration of the Full Member Option Period to negotiate such license in a field of use. All such negotiations shall be directly with an inventing Academic Member using such Academic Member's standard terms and conditions. Full Members that requested intellectual property protections shall share equally in all costs and expenses incurred for such protections. Costs shall also be shared with requesting Associate Members as specified below.

If more than one Full Member wishes to negotiate an exclusive license in a field of use to Core IP, the inventing Academic Member shall negotiate with each Full Member in good faith and in accordance with Academic Member's standard practices. Any field of use exclusive license shall be exclusive as to the rest of the world, but non-exclusive as among those Full Members exclusively licensed in the same jurisdiction(s) by the inventing Academic Member.

The ILO shall notify those Associate Members who requested intellectual property protection for Core IP that such Core IP is available for licensing after expiration of the Full Member Option Period or, if there is no Full Member Option Period, ILO's initial notice of Core IP availability (30 days after intellectual property filing) shall serve as requesting Associate Member's licensing availability notification. Within a total of one hundred twenty (120) days of the date of such notification ("Associate Member Option Period"), said requesting Associate Members shall: (1) provide written notification to the ILO and all Academic Members having an ownership interest in the subject Core IP of such Associate Member's interest in negotiating an exclusive or non-exclusive, revenue-bearing license for the Core IP in an available field of use, and (2) negotiate such license. Written notification of license negotiation interest shall be provided by the Associate Member to the ILO within the first thirty (30) days of the Associate Member Option Period ("Associate Member Notification Period"). A copy of any Associate Member written notification of a desire to negotiate shall be provided by the notifying Associate Member to Academic Members that are sole or co-owners of the Core IP of interest. The ILO shall promptly inform the other requesting Associate Members that another requesting Associate Member has expressed an interest in license negotiation. Each Associate Member who has notified the ILO and inventing Academic Members during the Associate Member Notification Period of its interest in negotiating a license to the subject Core IP shall have a term extending from the end of the Associate Member Notification Period to the expiration of the Associate Member Option Period to negotiate such license in a field of use. All negotiations shall be directly with the inventing Academic Member using such Academic Member's standard terms and conditions. For any Core IP that: (1) is available for licensing during the Associate Member Option Period and (2) was requested by Associate Member(s), the requesting Associate Member(s) shall share equally with requesting Full Members all costs and expenses incurred for such protections. If protections for Core IP requested by Associate Member(s) were not requested by any Full Member(s), the costs for such protections shall be shared equally among the requesting Associate Member(s).

If more than one Associate Member electing to negotiate as specified above wishes to negotiate an exclusive license available for Core IP in a field of use, the inventing Academic Member shall negotiate with each Associate Member in good faith and in accordance with Academic Member's standard practices. Any field of use exclusive license shall be exclusive as to the rest of the world, but non-exclusive as among those Associate Members exclusively licensed in the same jurisdiction(s) by the inventing Academic Member.

After expiration of the Associate Member Option Period, any Core IP available for licensing shall be placed in a pool of technology and made available to Practitioner Members as well as companies not participating in NEWT, for any available fields of use. Negotiations for any Core IP in the technology pool shall be conducted directly with the inventing Academic Member on mutually agreeable terms and within a determined timeframe.

Any and all licenses granted to Core IP shall be subject to a reservation of rights granted to the U. S. Government under the provisions of 35 U. S. C. § 201 et seq.

The Academic Members are hereby granted an irrevocable worldwide right to use Core IP on a non-exclusive royalty-free basis for research and education purposes, including collaborations

with other researchers. Academic Members shall further retain the right to publish and disclose any results of such other research.

Project Intellectual Property

Project Intellectual Property shall be owned and managed by the inventing Academic Member(s) in accordance with the terms of the sponsored research agreement funding the research generating such Intellectual Property and shall not be subject to the terms of NEWT or this IPMP.

Background Intellectual Property

The owner of Background Intellectual Property shall retain all rights and title to such Background Intellectual Property.

Publication Rights

It is the intent of NEWT and the Academic Members to share the data generated under this NERC and to publish and otherwise publically disclose at academic and professional conferences and other meetings the results of the research consistent with academic standards.

NEWT Core Intellectual Property Invention Disclosure

Date: _____

Title of Invention: *should be sufficiently descriptive to aid in identifying the invention:*

Institution(s) _____

Name of Inventor(s)

**Were research funds from another grant or contract (other than the NEWT) used?
Yes ___ No___ If yes, please list the grant or contract number and the source of the
funds:**

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**Please attach full invention disclosure submitted by inventor(s) to home
institution(s). Invention disclosure shall be maintained confidential by Rice
University.**

Bylaws

February 29, 2020

**Nanosystems Engineering Research Center (NERC)
for
Nanotechnology Enabled Water Treatment Systems (NEWT)**

BYLAWS

BACKGROUND

The National Science Foundation (NSF) has provided funding in support of education and research for the NSF Nanosystems Engineering Research Center for Off-Grid Nanotechnology Enabled Water Treatment (NEWT) to Rice University (Rice) in Houston, Texas; Arizona State University, in Tempe, Arizona; the University of Texas at El Paso in El Paso, Texas; and Yale University in New Haven, Connecticut. Collectively, the four universities shall be called the “Academic Members.” In conjunction with the research activities under the NEWT Program, Rice has created this Industry/Practitioner Membership Program (“Program”) to facilitate the implementation of NEWT. This Program shall consist of three levels of membership: Full Member, Associate Member and Practitioner Member which shall collectively be called “Industry Members.” Academic Members and Industry Members shall collectively be referred to as “Members.”

NEWT is a unique resource for its Industry Members, providing a collaborative environment whereby the educational and research expertise of all Industry Members can be leveraged to develop next-generation affordable, mobile, modular, high-performance water treatment systems enabled by nanotechnology. Systems will be compact, energy efficient with the option of solar power, and adaptable to varying source water quality to meet the growing industrial and societal needs for off-grid water supply and reuse.

NEWT’s mission is articulated in its strategic plans for research, university education, pre-college education, industrial collaboration and the innovation ecosystem, and infrastructure including diversity. NSF guidelines will apply to intellectual property conceived or developed in the performance of the NSF funded projects, and Academic Members will be granted a non-exclusive royalty free license for internal (non-commercial) research and Full and Associate Members can exercise an option to negotiate an exclusive or non-exclusive, revenue-bearing license on terms to be determined, as explained in the NEWT Intellectual Property Management Plan (IPMP). If Full and Associate Members have not exercised such options, the intellectual property shall be placed in a pool of technology available to Practitioner Members as well as companies not participating in NEWT.

To help accomplish NEWT’s mission, this Program has been established to create a culture of innovation and a mechanism for translating ideas from university research into professional practice. Industry Members’ guidance and active participation will help NEWT to realize its mission.

1. MEMBERSHIP ELIGIBILITY AND GOALS

Membership in the Program is open to corporations, companies, partnerships, sole proprietorships, utilities, or any other legally recognized business entity,

or any water agency or hospital, that agrees to support NEWT's mission and the goals of its Program and makes its annual membership contribution. The goal of the Program is to facilitate:

- Active participation in advancing NEWT research through an innovation ecosystem;
- Providing guidance on strategic planning and research;
- Serving on the Industry/Practitioner Advisory Board (IPAB) that analyzes NEWT activities;
- Providing insight into real-world challenges associated with new technologies; and
- Contributing cash and in-kind resources to research.

2. GENERAL PROVISIONS

2.1 Industry/Practitioner Membership Program Management and Operation

NEWT's Program is led by an ERC Center Director, a Rice faculty member, along with the Industrial Liaison Officer (ILO), for management of NEWT's and the NEWT Program account. NEWT's Industry/Practitioner Advisory Board (IPAB) Executive Committee supports the Center Director and ILO by recommending collaborative interactions, strategic planning and research topics, as well as providing advice to guide the overall NEWT research and educational programs. The IPAB is expected to play an important role in advancing the goals of NEWT, including the creation and demonstration of the scientific, technological, economic and institutional feasibility of innovative methodologies and systems governing water infrastructure, assisting in the transfer of research discoveries and observations for the public benefit, and developing an interdisciplinary education program. The IPAB is administered by Rice through the ILO.

The IPAB will consist of one representative from each Industry Member's organization. The IPAB shall nominate from its membership IPAB representatives to serve on an Industry/Practitioner Advisory Board Executive Committee (IPAB-EC). For the first year during startup, the IPAB-EC Chair and co-Chair shall be appointed by the Center Director and thereafter the IPAB-EC Chair and co-Chair shall be elected by the IPAB and approved by the Center Director. The number of IPAB-EC members and appointments shall be approved by the ERC Center Director. The IPAB-EC will be managed by the ILO, including supportive administrative tasks. The IPAB-EC will be constituted, to the extent reasonably possible, so as to represent the broad spectrum of the IPAB membership and will ensure the overall synergy of the research carried out in various thrust areas and make recommendations to the IPAB.

The IPAB will assist with identifying and recommending priorities of NEWT's educational and research programs to the ILO and IPAB-EC and participate in the evaluation of progress towards its goals and objectives. The IPAB members will conduct an annual strengths, weaknesses, opportunities and threats analysis of NEWT's research thrusts and provide the analysis to the IPAB-EC Chairs, ILO, and the IPAB Executive Committee.

The requirements for Industry Members participating in NEWT are defined in Section 2.3 below.

The IPAB-EC shall recommend new members for approval by NEWT's Center Director. The ILO will review members annually and make a recommendation to NEWT's Center Director

for continuing beneficial relationships or terminating relationships that are not benefitting NEWT.

The IPAB duties include:

- Meet as a group of IPAB participants twice a year with NEWT researchers during semi-annual reviews;
- Provide advice and recommendations on developing the strategic plan;
- Review overall progress against strategic goals;
- Critique the progress and direction of research thrusts, including an annual Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis;
- Discuss the strategic plan and suggest potential modifications based on research results;
- Review and suggest potential changes to the education efforts;
- Engage in joint research and experimental test beds to validate NEWT research results in practical applications;
- Assist in translating NEWT research results through commercial implementation; and
- Recommend industry speakers for workshops and seminars to promote the mission of NEWT.

2.2 BENEFITS OF INDUSTRY MEMBERSHIP

NEWT Industry Members are entitled to the following benefits:

- Early access to NEWT research products such as reports, papers, and other publications originated by faculty and researchers of the Academic Members prior to dissemination to the general public. Early access may include papers in publication, annual reports, poster research briefs, and discussions with faculty and students.
- Data and information resulting from NEWT research will be shared with Industry Members and Academic Members, and such Industry Members and Academic Members may utilize and disclose such data and information within the conduct of their normal business. Academic Members retain the first right to publish the results of NEWT research.
- Industry Members will have access to intellectual property license rights in accordance with the privileges of membership in the membership structure below.
- Industry Members will have access to facilities and instrumentation utilized in NEWT research, but such access is subject to any requirements or limitations of the organization whose facilities and instrumentation are being accessed. These arrangements shall be decided on a case-by-case basis to advance NEWT research and accelerate innovation.
- Industry Members may request on-location short courses to be provided by the Academic Members at fees to be negotiated between the Academic Members and Industry Members to cover costs.
- Industry Members will have access to the NEWT web site, which comprises an electronic information network maintained by the Academic Members for timely exchange of information, e.g., accepted or submitted papers or working drafts as appropriate, annual progress reports, and created knowledge base of research advances.
- Industry Members who wish to support a particular NEWT research thrust or topic above the level of their annual membership fee may do so by providing such funding support directly to an Academic Member under a separate agreement or arrangement.

2.3 MEMBERSHIP STRUCTURE

NEWT's Program offers a multi-level membership structure:

Membership Level	Level of Support	Type of Organization	Privileges of Membership*
Full Member	>500 full-time employees: \$25,000 cash 50-499 full-time employees: \$15,000 cash <50 full-time employees: \$5,000 cash	For profit companies interested in development of and access to intellectual property	<ul style="list-style-type: none"> • Voting member of IPAB • Option to negotiate an exclusive or nonexclusive revenue-bearing license in a field of use to intellectual property funded by NEWT for commercial purposes.
Associate Member	\$8,000 cash plus in-kind contribution equivalent to \$2,000 or more	For profit companies that contribute important engineering and design expertise to ERC research and interested in development of and access to intellectual property	<ul style="list-style-type: none"> • Non-voting member of IPAB • Option to negotiate an exclusive or nonexclusive revenue-bearing license in a field of use to intellectual property funded by NEWT for commercial purposes, to the extent such license is available after any Full Member negotiations.
Practitioner Member	\$10,000 in-kind	Water agencies, hospital	<ul style="list-style-type: none"> • Non-voting member of IPAB

*Privileges of Membership are only available to Full, Associate and Practitioner Members during years when the Industry Member has paid membership fees in full.

The Center Director may, in consultation with NEWT's IPAB Executive Committee, make recommendations to change the membership structure, however, no change to such structure may be implemented without the approval of all Academic Members.

Industry Members who wish to support a particular research topic above the level of their annual contribution may do so by providing such additional funding support directly to an Academic Member under a separate agreement or arrangement, as long as the terms of such agreements or arrangements are consistent with, and do not conflict with, NEWT research activities.

Membership fee payments shall be made annually and both new and renewal membership fee payments are non-refundable. Memberships will be effective on a twelve-month year basis. For memberships obtained on or prior to March 31, 2020, such memberships have an annual

membership start date of January 1st. For memberships obtained after March 31, 2020, such memberships have an annual start date corresponding to the month and day Rice received a signed NEWT membership form or, for Full and Associate Members, the month and day Rice received the first applicable cash payment for membership, whichever date is later. Each year, on a member's membership start date, annual membership will renew automatically at the same membership level, and renewal payments will be due no later than thirty days from such start date.

Associate Members making in-kind contributions exceeding \$2,000 for direct support of on-going projects may apply such excess toward the following year's in-kind contribution. In-kind contributions may include equipment, supplies and other expendable property, and the value of goods and services directly benefiting and specifically identifiable to NEWT projects or the NEWT program. In accordance with NSF requirements, the basis for valuing the in-kind contribution must be documented by Associate Members and Practitioner Members annually. For the purpose of membership fee payment, non-equipment in-kind contributions are generally recognized at a 30% discount to fair market value, and in-kind equipment contributions are generally recognized at a 50% discount to fair market value. The Center Director shall have the final decision whether to accept or deny any in-kind contribution, and its valuation, for NEWT research.

Membership fees may be used for educational, research and other programs and administrative activities of NEWT.

3. CONFIDENTIALITY POLICY

3.1 For the purpose of Article 3 herein, the following terms shall have the following meanings:

3.1.1 NEWT Member means any Academic Member or Industry Member of NEWT.

3.1.2 Disclosing NEWT Member means a NEWT Member, its employees, faculty, staff and students, furnishing Confidential Information.

3.1.3 Receiving NEWT Member means a NEWT Member, its employees, faculty, staff and students, receiving Confidential Information.

3.2 For the purpose of this Article 3, Confidential Information includes, but is not limited to, all technical, corporate, financial, economic, legal or other information or knowledge generally concerning a NEWT Member or any of its affiliates, whether disclosed orally, or in the form of written material, computer data or programs, and including information respecting models, mechanisms, processes, photographs, intellectual property, inventions, invention disclosures, know-how, or otherwise, howsoever obtained, and which is clearly and obviously identified in writing at the time of disclosure by an appropriate legend, marking, stamp or other positive written identification on the face of the document or item, or if disclosed orally, is identified as confidential at the time of disclosure and subsequently confirmed in writing by the Disclosing NEWT Member to the Receiving NEWT Member within thirty (30) days of the disclosure. Receiving NEWT Member shall not be required to keep confidential any Confidential Information that:

3.2.1 is disclosed lawfully to the Receiving NEWT Member by a third party who has no obligation of confidentiality to the Disclosing NEWT Member with respect to the disclosed information;

3.2.2 is, or becomes, generally known to the public, other than by a breach by a

Receiving NEWT Member of its obligations hereunder;

3.2.3 is already known by the Receiving NEWT Member before disclosure by the Disclosing NEWT Member hereunder as can be proved by evidence of the Receiving NEWT Member, and which is not the subject of a previous confidentiality agreement between the Disclosing NEWT Member and the Receiving NEWT Member; or

3.2.4 is developed by the Receiving NEWT Member independently of the disclosure by the Disclosing NEWT Member.

3.3 For a period of three (3) years after the disclosure of any given item of Confidential Information, the Receiving NEWT Member shall maintain each such item of Confidential Information in strict confidence and shall not disclose that information, except to the extent necessary for the performance of research conducted through the use of NSF funds and/or Industry Members' fees and contributions (Core Research), to any third party, except with the prior written consent of the Disclosing NEWT Member. The obligations of this Article 3 shall continue with respect to any Confidential Information for said three (3) year period, regardless of the termination or expiration of a NEWT Member's membership in the NEWT. Notwithstanding the provisions of this Article 3, a Receiving NEWT Member may disclose Confidential Information to the extent required to comply with applicable laws, governmental regulations, subpoena, or court order, provided that prior notice is promptly delivered (if legally permitted under the circumstances) to the Disclosing NEWT Member in order to provide it with an opportunity to seek a protective order or other similar order with respect to such Confidential Information and the Receiving NEWT Member thereafter discloses only the minimum information reasonably required to be disclosed in order to comply with the request, whether or not a protective order or other similar order is obtained by the Disclosing NEWT Member.

3.4 In the course of carrying out the work of NEWT, NEWT does not expect to receive any Confidential Information other than invention disclosures. If, to benefit Core Research, it becomes necessary for an Industry Member to divulge proprietary information to any member of the staff of NEWT (including students), such divulgence shall be made in writing, or if made orally, confirmed in written summary within thirty (30) days of disclosure. It will be the responsibility of the individual(s) involved in such transaction to execute an appropriate confidentiality agreement between the involved parties, if appropriate, and to keep the information confidential

4. AMENDMENTS

These Bylaws may be amended only by the unanimous vote of the Academic Members.

5. INTELLECTUAL PROPERTY POLICY REGARDING CORE RESEARCH

NEWT will create an entrepreneurial culture and equip students and faculty with tools for Intellectual Property application and management, as well as create and start-up companies. Intellectual Property (as defined in the IPMP) shall be managed in accordance with the NEWT Intellectual Property Management Plan.

6. PUBLICATIONS AND PRESENTATIONS

6.1 Members recognize that the results of Core Research will be published and that researchers engaged in Core Research shall be permitted to present at symposia and international, national

or regional professional meetings, and to publish the methods and results of Core Research in theses, dissertations and journals, on the Internet, or otherwise of their own choosing. Publication and presentation materials will be subject to the standard review procedures consistent with the practices and policies of the Academic Members' technology transfer offices (generally thirty (30) days prior to publication or public disclosure).

6.2 All publications arising from NEWT research shall contain an acknowledgment that the work was funded at least in part by the NSF award.

7. COMMUNICATIONS POLICY

7.1 NEWT will maintain a web presence so that knowledge generated can be provided to the public. Members agree NEWT will use Members' names on the NEWT website and in marketing materials. NEWT will use primarily emails to exchange information with Members. NEWT may also publish electronic newsletters to highlight the latest accomplishments of NEWT. NEWT will work to establish a secure portal to allow Industry Members to access any sensitive information.

7.2 The annual NSF review and NEWT symposium will be hosted by Rice or one of the other Academic Members. This meeting will present an executive summary of the year's accomplishments. Scientific results from NEWT will be included in presentations, posters, testbeds and lab tours. Graduate students, postdoctoral fellows and research associates will be utilized as appropriate.

7.3 NEWT will publish an annual report in which NEWT research, education and outreach accomplishments, and prospects for the future are reported. This report will be distributed to Members before the NEWT's annual symposium.

7.4 At least one IPAB meeting will be held each year in conjunction with the annual NSF review and NEWT symposium.

8. COMPLIANCE WITH UNITED STATES ANTITRUST AND COMPETITION LAWS

NEWT includes among its members parties who are business competitors. It is the policy of NEWT to comply with United States antitrust and competition laws that apply to each of its Industry Members and to encourage its Industry Members and Academic Members to do so as well. Accordingly, in connection with any NEWT meeting or activity sponsored by an Academic Member, no Member shall reach any agreement or exchange any information concerning cost or pricing information, sales or marketing strategies, terms and conditions of purchase or sale, the allocation of customers or territories. All Members shall avoid even the appearance of such agreements or exchanges of information. If discussions prohibited by this rule take place in any such meeting or activity, all Members should cease participation immediately. In order to minimize the likelihood of such an occurrence, all meetings and activities sponsored by NEWT shall be conducted in accordance with a published agenda and shall be documented in appropriate meeting minutes.

9. EXPORT CONTROLS

It is understood by all Industry Members that the research conducted by NEWT and the individual Academic Members is anticipated to be of the type which qualifies for the fundamental research exclusion under applicable U.S. export laws and regulations (including the Arms Export Control Act, as amended, and companion regulations, the International Traffic in Arms Regulations, the Export Administration Act of 1979, and companion regulations, the Export

Administration Regulations). Notwithstanding the foregoing, all Members of NEWT shall abide by all applicable laws and regulations concerning the export or re-export of technical data, computer software, laboratory prototypes and other commodities.

10. TERMINATION

The NEWT Center Director, in consultation with the Council of Deans (comprised of the deans of the engineering schools of the Academic Members) may terminate NEWT upon written notice to the Academic Members and all Industry Members if the NSF award is terminated or if conditions otherwise preclude continuation of NEWT. In such case, uncommitted fees shall be returned to the Industry Members on a pro rata basis. Articles 3, 5, and 6, of these Bylaws shall survive the termination of NEWT and/or the expiration or termination of any agreement which, by reference or otherwise, incorporates these Bylaws.