

TITLE AND DESCRIPTION OF INTELLECTUAL PROPERTY

TITLE OF IP DISCLOSURE:

BRIEF DESCRIPTION OF IP:

IN ADDITION, PLEASE BE SURE TO ATTACH a comprehensive description of the IP to this form, including a detailed description of experimental results, figures and/or tables that support your conclusions and proposed uses. Please feel free to add short statements indicating other possible conceptual uses, in addition to the ones that you have already demonstrated. Review of the disclosure and protection of the intellectual property will be delayed without a comprehensive description.

RELEVANT SPONSORSHIP AND OTHER AGREEMENTS

YES NO

1. WAS THIS IP DEVELOPED WITH THE USE OF ANY **EXTERNALLY SPONSORED (Private or Public) GRANT/ CONTRACT FUNDS?** IF YES, PLEASE **IDENTIFY ALL AGREEMENTS BELOW AND ATTACH A COPY OF THE AWARD LETTER OR CONTRACT COVER SHEET THAT INDICATES THE GRANT OR CONTRACT NUMBER.**

AGENCY OR SPONSOR	GRANT/CONTRACT	VT FUND NO.	PRINCIPAL INVESTIGATOR
--------------------------	-----------------------	--------------------	-------------------------------

2. WAS THIS IP DEVELOPED USING ANY **VT INTERNAL FUNDS?**IF YES, IDENTIFY SOURCE:

3. HAVE YOU ENTERED INTO ANY **OTHER AGREEMENTS** (I.E. MATERIAL TRANSFER AGREEMENT (MTA), MEMORANDUM OF UNDERSTANDING, CONSORTIUM AGREEMENT, OR CONSULTING AGREEMENT) WHICH MAY GRANT RIGHTS OF ANY SORT IN THIS IP TO A COMPANY OR PARTY OUTSIDE VIRGINIA TECH?**IF YES, PLEASE ATTACH.**

DATES OF CONCEPTION, REDUCTION TO PRACTICE, AND PUBLIC DISCLOSURE (See Definitions)

DATE THIS IP WAS **CONCEIVED?**

HAS THE **CONCEPTION** BEEN DOCUMENTED? YES NO IF YES, **WHERE?**

HAS THIS IP BEEN **REDUCED TO PRACTICE?** YES NO IF YES, **WHEN?**

HAVE YOU **PUBLISHED** OR **PLAN TO PUBLISH** YOUR IP? YES NO

IF YES, PLEASE **ATTACH ANY ABSTRACT, POSTER, PUBLICATION, PRESENTATION, OR WEBSITE THAT CONTAINS THE IP.**

EXPORT CONTROL

EXPORT CONTROL: IS THIS IP LIKELY TO HAVE ANY EXPORT CONTROL SENSITIVITY? YES NO

- PLEASE CHECK YES IF YOU BELIEVE THE IP MAY BE SUBJECT TO EXPORT CONTROLS (E.G. INTERNATIONAL TRAFFIC IN ARMS REGULATIONS, EXPORT ADMINISTRATION REGULATIONS, NUCLEAR REGULATORY COMMISSION).
- IF YOUR PROJECT IS NOT CONSIDERED FUNDAMENTAL RESEARCH AND REQUIRED THE ESTABLISHMENT OF A TECHNOLOGY CONTROL PLAN OR FACULTY AGREEMENT WITH THE OFFICE OF EXPORT AND SECURE RESEARCH COMPLIANCE (OESRC), PLEASE CHECK YES.

OWNERSHIP DETERMINATION -- VIRGINIA TECH IP ORIGINATORS

IP Originator Owned We do not believe Virginia Tech has any rights or ownership to the invention disclosed. **DO NOT SIGN BELOW.**

University Owned Virginia Tech shall share any royalty income derived from this disclosure according to VT Policy 13000. Virginia Tech IP originators must complete Attachment B – Royalty Sharing. **PLEASE SIGN AND DATE BELOW.**

By signing below, all Virginia Tech IP originators agree to assign, and do hereby assign, all right, title and interest to this intellectual property to Virginia Polytechnic Institute and State University (VT) and agree to execute all documents as requested, assigning to VT their rights in any patent application or other intellectual property protection filed on this IP disclosure, and to cooperate with Virginia Tech Intellectual Properties, Inc. (VTIP) in the protection of this intellectual property. By signing below, the IP originators confirm that prior to the execution of this disclosure, they have not granted the right or license to make, use, or sell the disclosed intellectual property to anyone except to VT, nor have they otherwise encumbered their rights, title, and interest in the disclosed intellectual property, nor will they execute any instrument in conflict with this agreement.

INVENTOR or IP Originator SIGNATURE (1)	DATE	TYPED NAME	TITLE
VT DEPT/CENTER		VT PHONE	VT EMAIL
VT ADDRESS		RESIDENCE ADDRESS	
VT ID NUMBER	CITIZENSHIP		

INVENTOR or IP Originator SIGNATURE (2)	DATE	TYPED NAME	TITLE
VT DEPT/CENTER		VT PHONE	VT EMAIL
VT ADDRESS		RESIDENCE ADDRESS	
VT ID NUMBER	CITIZENSHIP		

INVENTOR or IP Originator SIGNATURE (3)	DATE	TYPED NAME	TITLE
VT DEPT/CENTER		VT PHONE	VT EMAIL
VT ADDRESS		RESIDENCE ADDRESS	
VT ID NUMBER	CITIZENSHIP		

INVENTOR or IP Originator SIGNATURE (4)	DATE	TYPED NAME	TITLE
VT DEPT/CENTER		VT PHONE	VT EMAIL
VT ADDRESS		RESIDENCE ADDRESS	
VT ID NUMBER	CITIZENSHIP		

Original signatures and digital signatures are accepted. IP originators do not need to all sign the same page (multiple copies of this page are acceptable). Please include any non-VT inventors on the next page. (Add additional sheets as necessary).

OTHER (NON-VT) IP ORIGINATORS

Please provide information for any IP originators affiliated with other institutions or companies (as applicable). The information provided will be used to contact the other IP originator(s) if intellectual property protection is pursued on the IP disclosure. Signatures of IP originators not affiliated with Virginia Tech are not required.

<hr/> <table border="0" style="width: 100%;"><tr><td style="width: 50%;">TYPED NAME</td><td style="width: 50%;">TITLE</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">INSTITUTION/COMPANY ADDRESS</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">CITIZENSHIP</td></tr></table>	TYPED NAME	TITLE	INSTITUTION/COMPANY ADDRESS	CITIZENSHIP	<hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">INSTITUTION/COMPANY AFFILIATION</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 50%;">PHONE</td><td style="width: 50%;">EMAIL</td></tr></table> <hr/>	INSTITUTION/COMPANY AFFILIATION	PHONE	EMAIL
TYPED NAME	TITLE							
INSTITUTION/COMPANY ADDRESS								
CITIZENSHIP								
INSTITUTION/COMPANY AFFILIATION								
PHONE	EMAIL							

<hr/> <table border="0" style="width: 100%;"><tr><td style="width: 50%;">TYPED NAME</td><td style="width: 50%;">TITLE</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">INSTITUTION/COMPANY ADDRESS</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">CITIZENSHIP</td></tr></table>	TYPED NAME	TITLE	INSTITUTION/COMPANY ADDRESS	CITIZENSHIP	<hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">INSTITUTION/COMPANY AFFILIATION</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 50%;">PHONE</td><td style="width: 50%;">EMAIL</td></tr></table> <hr/>	INSTITUTION/COMPANY AFFILIATION	PHONE	EMAIL
TYPED NAME	TITLE							
INSTITUTION/COMPANY ADDRESS								
CITIZENSHIP								
INSTITUTION/COMPANY AFFILIATION								
PHONE	EMAIL							

<hr/> <table border="0" style="width: 100%;"><tr><td style="width: 50%;">TYPED NAME</td><td style="width: 50%;">TITLE</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">INSTITUTION/COMPANY ADDRESS</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">CITIZENSHIP</td></tr></table>	TYPED NAME	TITLE	INSTITUTION/COMPANY ADDRESS	CITIZENSHIP	<hr/> <table border="0" style="width: 100%;"><tr><td style="width: 100%;">INSTITUTION/COMPANY AFFILIATION</td></tr></table> <hr/> <table border="0" style="width: 100%;"><tr><td style="width: 50%;">PHONE</td><td style="width: 50%;">EMAIL</td></tr></table> <hr/>	INSTITUTION/COMPANY AFFILIATION	PHONE	EMAIL
TYPED NAME	TITLE							
INSTITUTION/COMPANY ADDRESS								
CITIZENSHIP								
INSTITUTION/COMPANY AFFILIATION								
PHONE	EMAIL							

**INTELLECTUAL PROPERTY DISCLOSURE
ATTACHMENT A – REVIEW FOR UNIVERSITY OWNERSHIP AND ROYALTY SHARING**

To be completed by the university IP originators and reviewed by the home Department Head/Center Director of each IP originator. If IP originators are from different home department(s)/center(s), Attachment A shall be submitted for each unit.

University Ownership

YES NO

- 1. Were university resources, such as the time and services of university employees, or facilities, such as equipment, materials, funds, information, or the time or services of other university employees, used in the development of the intellectual property?

- 2. Does the work performed in the development of this intellectual property fall within the range of the normal activities expected of the IP originators by their appointment or employment by the university (i.e. teaching, research, public service)

- 3. Did the IP originators work on this project during their normal university working hours?

Exception to Royalty Sharing Eligibility: YES NO

- 1. Did the intellectual property result from tasks and/or activities that were specifically and explicitly assigned to the employee(s) by your unit? In other words, did the employee just perform tasks as assigned, as opposed to providing original intellectual contribution? University Policy 13000 on Intellectual Properties states that revenues from such intellectual property are excepted from royalty sharing with such employee(s).

If yes, the signature below attests that this work was specifically and explicitly assigned to the employee(s) identified as NOT ELIGIBLE below and who cannot share in any royalties:

Signature of Immediate Supervisor

Printed Name/Title of Immediate Supervisor Date

- 2. **If yes**, the undersigned university originators of the intellectual property described in this disclosure acknowledge that this work was specifically and explicitly assigned to us and that we are not eligible to share in any royalties:

IP ORIGINATOR NAME (NOT ELIGIBLE FOR ROYALTY SHARING) SIGNATURE DATE

IP ORIGINATOR NAME (NOT ELIGIBLE FOR ROYALTY SHARING) SIGNATURE DATE

IP ORIGINATOR NAME (NOT ELIGIBLE FOR ROYALTY SHARING) SIGNATURE DATE

Reviewed by Department Head/Center Director

By signing below, I have reviewed and agree to the above determination. (If the Reviewer is an IP originator on this disclosure, his/her administrative supervisor must sign below.) Should any royalties be earned from this disclosure, the home Department/Center of each IP originator is entitled to a 10% share divided equally among the departments/centers. Please indicate the home Department/Center Organization Code. The Budget Office will establish the fund based on activity and notify affected departments/centers.

SIGNATURE DATE DEPT/CENTER ORGANIZATION CODE

SIGNATURE DATE DEPT/CENTER ORGANIZATION CODE

**INTELLECTUAL PROPERTY DISCLOSURE
ATTACHMENT B – ROYALTY SHARING**

All royalties, rents, payments, or any cash receipts from the sale, assignment, transfer, licensing or use of the disclosed intellectual property shall be shared with inventors in accordance with VT Policy 13000: Policy on Intellectual Properties.

We, the undersigned university IP originators or contributors to of the intellectual property described in this disclosure, mutually agree that any share of revenues to be paid to us shall be distributed as follows:

Date	Printed Name	VT ID No.	Signature	Royalty Share*
Date	Printed Name	VT ID No.	Signature	Royalty Share*
Date	Printed Name	VT ID No.	Signature	Royalty Share*
Date	Printed Name	VT ID No.	Signature	Royalty Share*
Date	Printed Name	VT ID No.	Signature	Royalty Share*
Date	Printed Name	VT ID No.	Signature	Royalty Share*
Date	Printed Name	VT ID No.	Signature	Royalty Share*
Date	Printed Name	VT ID No.	Signature	Royalty Share*

***Percentages must total to 100%. If all university IP originators or contributors will share equally, indicate so by listing “equal” as the percentage—DO NOT LEAVE BLANK. VT ID number is required.**

DO NOT INCLUDE NON-UNIVERSITY IP ORIGINATORS. Non-university IP originators will share in royalties as determined by their employer.

Please be sure to include the date of your signature.

**INTELLECTUAL PROPERTY DISCLOSURE
ATTACHMENT C – COMMERCIAL APPLICATIONS**

Describe the current and/or potential commercial applications for this intellectual property.

List any potential contacts that you believe may be interested in this technology or may have background and expertise in the technology area(s) related to this intellectual property.

List any conferences, meetings, or trade shows that you and/or industry representatives attend that may help us make contacts to market, commercialize, and learn more about this intellectual property.

Provide a brief (approximately 250 words), non-confidential overview of the intellectual property that may be used to for marketing purposes and to solicit interest from potential licensees and respond to inquiries.

INTELLECTUAL PROPERTY DISCLOSURE INSTRUCTIONS

Virginia Tech recognizes the value of intellectual property (IP) and is committed to promoting the value of its intellectual property portfolio through its university affiliated corporation, Virginia Tech Intellectual Properties, Inc. (VTIP). Faculty and staff at Virginia Tech have an obligation to disclose research results that may result in intellectual property and/or commercial utilization. The IP disclosure is necessary to enable Virginia Tech to legally protect intellectual property and to comply with government and industry contractual requirements. This is an important legal document that should be completed when something new and useful has been conceived or developed, or when unusual, unexpected or unobvious research results have been achieved and can be utilized.

The **INTELLECTUAL PROPERTY (IP) DISCLOSURE** form is an internal Virginia Tech form used to provide a written record of your intellectual property. The information contained in this disclosure will be used to establish a legal record of the date of conception of the intellectual property, evaluate the technology as to its patent and commercial potential, obtain information necessary to file patent applications or other forms of IP protection, comply with sponsor reporting requirements, and to identify potential licensees.

NOTE: This form and its submission to VTIP does not constitute a patent filing at the patent office.

Virginia Tech is required by federal law to report income along with Social Security numbers for all employees and students to whom compensation is paid. The University may disclose your Social Security number when required by law, or to external entities acting as the University's contractor or agent. Your VT ID number will be used by VTIP to verify your Social Security number.

Please send the completed, signed form and all attachments to by email to vtippatents@vtip.org or delivered/mailed to the following address:

Virginia Tech Intellectual Properties, Inc.
1015 Life Science Circle, Room 315D
Blacksburg, VA 24060

Tel: (540) 951-9374
Website: www.vtip.org

The completion of this disclosure is the beginning of the IP originator's responsibility in this process. The University encourages all IP originators to monitor the progress of their disclosure through VTIP as IP originators are often the best sources of information concerning the capabilities and commercial potential of the IP. VTIP has regular office hours on campus and at its location in the Virginia Tech Corporate Research Center to answer your questions and to learn more about the IP and innovation resources at Virginia Tech.

DEFINITIONS

Inventorship is determined by criteria specified in the U.S. patent law. U.S. patents are granted only to the true inventor(s). An inventor would be that person who, alone or in combination with others, discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof. Authorship does not necessarily mean inventorship. A great research proposal is also not necessarily patentable.

The correct listing of all inventors is very important. A patent can be invalidated for the failure to list all of the proper inventors. Inventors may need to be added to an application or initially named inventors removed from the patent based upon the final claims in the patent.

Conception according to the U.S. patent law involves the formulation, in the mind of the inventor(s), of a definite and permanent idea of the complete and operative invention. An invention would be complete and operative if the description would enable one of ordinary skill in the art to construct the apparatus or perform the method without extensive research or experimentation. If extensive research or experimentation is necessary to reduce the invention to practice, then the conception was probably not complete. Likewise, if no significant difficulties were encountered and few if any deviations were made from the mental plan, the conception was probably complete, and the person or persons responsible for the plan are the true inventors. If deviations were required, those responsible for the deviations could be joint inventors.

Reduction to practice can be accomplished two different ways. Actual reduction to practice is a physical embodiment of the invention for its intended use. Constructive reduction to practice is reasonable theoretical proof that the invention will work, which is described in writing.

First written publication or oral public disclosure is the first time any member of the general public, without an obligation of confidentiality, would have been able to legally gain access to your written or printed enabling description of the invention, or the first oral presentation to the general public.

INTELLECTUAL PROPERTY DISCLOSURE INSTRUCTIONS

TITLE AND DESCRIPTION OF INTELLECTUAL PROPERTY

Provide a descriptive and concise title and attach a **comprehensive description of the invention**. Please state the key features of your invention, its most important uses, and how it improves on existing technology or practice. Attach supporting documentation that can provide a more complete description of the invention (i.e. manuscripts, diagrams, or data) and that describe its advantages and differences over existing technology. In addition, describe the objectives or results to be achieved by this invention.

ORIGINATOR(S)/INVENTOR(S)

- An inventor is a person who has conceived or contributed to an essential element of the invention during the evolution of the technology concept or reduction to practice.
- List originators/inventors in the order you would like them to appear on a patent application or other form of intellectual property protection.
- List all originators/inventors, even if not associated with Virginia Tech. List more than four inventors on an additional page.
- University originators/inventors or contributors listed on Attachment B – Royalty Sharing should keep VTIP informed of any change in address.

RELEVANT SPONSORSHIP AND OTHER AGREEMENTS

Identify and list all grants, contracts, and other sources of funds contributing to or possibly contributing to the conception and/or development of the invention. Accurate and complete sponsorship information is required to meet the obligations of Virginia Tech under sponsored research grants and contracts.

DATES OF CONCEPTION, REDUCTION TO PRACTICE, AND PUBLIC DISCLOSURE

List dates for conception and reduction to practice and provide copies of any publications or abstract or other forms of public disclosure as well as any future plans for publications or public disclosure which mention or describe the invention in whole or in part. Accurate data is essential, as public disclosures affect patent rights in the U.S. and abroad.

Virginia Tech's Policy on Intellectual Property:

<http://www.policies.vt.edu/13000.pdf>