

PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT6609095

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
JOHN E. SIPE	08/02/2018
MARCO LISCINDINI	08/02/2018
RECEIVING PARTY DATA	
Name:	THE GOVERNING COUNCIL OF THE UNIVERSITY OF TORONTO
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City:	TORONTO
State/Country:	CANADA
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PROPERTY NUMBERS Total: 2	
Property Type	Number
Application Number:	17108221
PCT Number:	CA2019050899
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ATTORNEY DOCKET NUMBER:	XQTI-007/01US 331150-2041
NAME OF SUBMITTER:	LESLY MCANELLY
SIGNATURE:	/Lesly A. McAnelly/
DATE SIGNED:	03/18/2021
Total Attachments: 9	
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ASSIGNMENT TO THE UNIVERSITY FROM INVENTOR AND REVENUE SHARING AGREEMENT

This assignment and revenue sharing agreement (the "Agreement") is between John E Sipe, Marco Liscidini, their respective heirs, executors, administrators and assigns (collectively, the "Inventor") and The Governing Council of the University of Toronto, its successors and assigns (collectively, the "University").

WHEREAS, the inventor has created certain intellectual property entitled "Systems and methods for nonlinear optical light generation using linearly uncoupled resonators in integrated photonic devices" (Disclosure No. 10003605) as more particularly described in the disclosure form attached as Appendix 1 (the "Invention");

AND WHEREAS, the University and the Inventor jointly own the Invention under the University's *Inventions Policy* (the "Policy", including any successor policy thereto);

AND WHEREAS, rights are being granted to the research sponsor, Xanadu Quantum Technologies Inc., as a condition of the NSERC Engage Agreement and the Assignment of Rights, effective July 10, 2018;

AND WHEREAS, in order to offer rights to the sponsor, the Inventor wishes to assign its interest in the Invention to the University;

NOW THEREFORE this Agreement witnesses that in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by each of the parties, the parties covenant and agree as follows:

1. **Definitions.** In addition to any terms defined above, in this Agreement:
 - (a) "Commercialization Costs" means the legal and other fees incurred directly in the process of establishing and maintaining the legal protection of rights in the Invention;
 - (b) "Management Fee" means a fee for services provided by the University in connection with its commercialization of the Invention; and,
 - (c) "Net Revenue" means the royalty, licensing and other income or equivalent financial return received by the University from the assignment or licensing of the rights in the Invention, less any: (i) Commercialization Costs; and (ii) amounts payable to third parties under prior written agreements that directly relate to the Invention, including but not limited to funding and collaboration agreements.
2. **Assignment.** The Inventor hereby assigns to the University all right, title and interest, whatever the same may be (but without any representation or warranty as to the nature, extent or validity thereof) which the Inventor now has or may in the future have in the Invention, including, without limitation, the right to apply for patents in Canada, the United States of America and any other country, the right to receive any letters patent that may be issued from any such applications and the right to sell, license or assign the Invention or the rights thereto.

3. **Disclosure.** The Inventor shall make full and complete disclosure of the invention to the University, and shall make available to the University any physical embodiments of the invention and other data that will be or that may be useful to the University in exercising its rights in the invention.
4. **Assistance.** The Inventor shall execute, acknowledge and deliver all such further assurances and do all such acts as may be necessary to carry out the intent and purpose of this Agreement, including without limitation, to execute powers of attorney and other documents required to maintain intellectual property protection of the invention, and shall review and provide comments with respect to such intellectual property protection as and when requested by the University.
5. **Revenue Sharing.**
 - (a) Subject to 5(b), the University shall distribute sixty percent (60%) of the Net Revenue to the Inventor. The remaining forty percent (40%) of the Net Revenue shall be retained by the University and distributed in accordance with the Policy.
 - (b) If the Inventor is also the founder of a company and the University assigns or licenses the invention to that company, the Inventor agrees to waive all right to receive its share of the Net Revenue.
6. **Equivalent Revenue.** If an arrangement for commercialization of the invention is made which provides consideration other than cash, the University may liquidate the non-cash assets to the extent it deems necessary to recover Commercialization Costs. The parties shall share the proceeds of such non-cash consideration in the same proportion as provided in section 5.
7. **Payments.** Any money to be paid by the University under this Agreement shall be paid to the Inventor in Canadian funds in equal proportions, annually on or before the thirtieth (30th) day following the anniversary of the Effective Date.
8. **Term and Termination.** [THIS SECTION IS INTENTIONALLY DELETED]
9. **Indemnity.** The University shall indemnify and save the Inventor harmless from and against any loss arising out of or pursuant to any claims or demands in connection with the invention and all costs, damages and expenses (including reasonable legal fees) incurred by the Inventor in connection therewith, except to the extent caused by the breach of any obligations of the Inventor herein or of any representations or warranties given by the Inventor in the disclosure form attached as Appendix 1.
10. **Acknowledgement and Release.** The Inventor acknowledges that, because of the speculative nature of the undertaking to commercialize the invention, the University cannot guarantee that the results will meet the objectives sought. Save and except for the right to enforce the terms contained in this Agreement, the Inventor releases the University from any and all claims that the Inventor may now have or may in future have in respect of the invention. Any disputes arising under this Agreement shall be resolved by the parties in accordance with the dispute resolution procedures set out in the Policy.
11. **Counterparts.** This Agreement may be executed by signatures delivered by facsimile transmission or delivered electronically in optically scanned form; and/or it may be simultaneously executed by the inventors in multiple counterparts, each of which will be considered to be an original instrument, and all of which taken

together, where each inventor has executed at least one counterpart, will constitute one and the same instrument.

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Witness

Inventor

Emanuel Istrate (EMANUEL ISTRATE)

John E Sipe
John E Sipe

~~____~~ (DYLAN MAHLER)

Marco Liscidini
Marco Liscidini

The Governing Council of the University of Toronto

D. Newton

Derek Newton
Assistant Vice-President, Innovation, Partnerships and
Entrepreneurship

Executed at Toronto, Ontario this 2nd day of Aug, 2018 (the "Effective Date")

APPENDIX 1

Invention Disclosure Form



CONFIDENTIAL INVENTION DISCLOSURE

Innovations & Partnerships Office | Banting Institute, Room 413 | 100 College St. Toronto ON M5G 1L5
Tel: (416) 978-7833 | Fax: (416) 978-6052 | email: ip.officer@utoronto.ca

This form is used to record inventions made using U of T resources, facilities and/or funds managed by U of T and is to be completed by the inventor(s) to satisfy their obligations under U of T's Inventions Policy. For step by step information on how to complete the form, please refer to the invention disclosure guide.

1. Title of Invention:

Systems and methods for nonlinear optical light generation using linearly uncoupled resonators in integrated photonic devices

2. Inventors and Contributors:

a. Inventors at the University of Toronto: List all individuals who have made an inventive contribution to this disclosure through the use of U of T resources (i.e. faculty, students, postdocs, staff, visiting scientist, etc). Attach separate pages if necessary.

SURNAME, GIVEN NAMES	U of T PERSONNEL NO (if applicable)	DEPARTMENT (List any cross appointments or affiliated institutions)	AFFILIATION WITH U of T (i.e. faculty, research assoc., post-doc, student, staff, visitor, etc.)	EMAIL ADDRESS	CONTACT INFORMATION (non-U of T mailing address, phone, fax)	% CONTRIBUTION (*optional)
Sipe, John E.	811-765	Physics	Faculty	sipe@physics.utoronto.ca	#1205 -- 130 Carlton Str. Toronto, ON M5A 4K3 416-964- 9839	50%
Liscidini, Marco		Impact Centre	Visiting professor	marco.liscidini@unipv.it	University of Pavia, Dept. of Physics Via Bassi 6 27100 Pavia, Italy	50%

FOR IPO USE ONLY:

Disclosure Date: July 05, 2018

Disclosure No: 10003605

* If invention is assigned to Uoff, percentage will be used as a basis for sharing future revenues. Revenue distribution agreed to by the parties in an assignment agreement will govern.

For more information, see our Disclosure Guide.

- b. External inventors: List all individuals who have made an inventive contribution to this disclosure using non-U of T resources (i.e. sponsor employees, academic collaborators, etc). Please include names, organization, contact information and email address.

Zachary Vernon: Xanadu Quantum Technologies Inc., 372 Richmond St W, Suite 306, Toronto, ON, M5V1X6, zach@xanadu.ai, 416-304-9629.

Kang Tan: Xanadu Quantum Technologies Inc., 372 Richmond St W, Suite 306, Toronto, ON, M5V1X6, kang@xanadu.ai, 416-304-9629.

Blair Morrison: Xanadu Quantum Technologies Inc., 372 Richmond St W, Suite 306, Toronto, ON, M5V1X6, blair@xanadu.ai, 416-304-9629.

Matteo Menotti : Xanadu Quantum Technologies Inc., 372 Richmond St W, Suite 306, Toronto, ON, M5V1X6, matteo@xanadu.ai, 416-304-9629.

- c. Contributors (Non-inventors): List all individuals at or external to U of T who have not made an inventive contribution but have contributed to the development of the invention. Please include name, organization and email address.

None

3. Location(s) of Work:

Please list all locations (U of T and external) of the work leading to this invention, be specific (i.e. department, building, hospital, etc).

University of Toronto, Physics Building

Xanadu Quantum Technologies Inc., 372 Richmond St W, Suite 306, Toronto, ON, M5V1X6

4. Invention Description:

Please provide a description of this invention for evaluation, highlighting its novel or patentable aspects. Attach separate pages if necessary.

A photonic device comprising a plurality of resonators and a plurality of optical channels. Each resonator from the plurality of resonators has a set of resonance frequencies independently selected from a set of resonance frequencies of each remaining resonator from the plurality of resonators. Each resonator from the plurality of resonators lacks substantially any linear coupling between each remaining resonator from the plurality of resonators. The plurality of resonators defines a spatial overlap region between at least two resonators from the plurality of resonators such that nonlinear optical processes are optimized during operation. A plurality of optical channels is operatively coupled to the plurality of resonators. The plurality of optical channels is configured to receive light from the plurality resonators and configured to send light into the plurality of resonators.

5. Dissemination:

List all publications, abstracts, presentations or any other forms of public dissemination regarding this work, including dates.

None Yes (please provide details)

6. Funding:

Provide details regarding any funding used in the development of this invention (i.e. salary or stipend support, materials, equipment, etc.).

SPONSOR	PROJECT TITLE	RIS FUND #
NSERC Engage	Optimizing light sources for optical quantum computing applications	504198
OCE VIP1	Optimizing light sources for optical quantum computing applications	504199

7. Related Agreements:

Was the work leading to this invention subject to any written or oral contract(s) or other agreement(s) such as: material transfer, data transfer, software licence, confidentiality, collaboration, and/or sponsored research?

No Yes (please provide details)

This work was subject to the IP policy of the NSERC Engage project listed on the previous page.

8. Patent Applications:

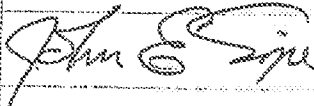

Have any patent applications or other intellectual property protections been filed in respect of this invention?

No Yes (please provide details)

Xanadu Quantum Technologies Inc. has filed a US Provisional Patent application based on this invention. (Application number: 62/691,680)

9. Warranty:

I/We, the inventors listed in Section 2(a), have read, understood and agree to all of the preceding, and declare that all of the information provided in this disclosure is complete and correct. To the best of our knowledge, all persons who might legally make an ownership claim in this invention are identified in Section 2(a) and 2(b).

NAME (typed):	SIGNATURE:	DATE:
John Sipe		5 July 2018
Marco Liscidini		5 July 2018

SUBMISSION INSTRUCTIONS:

Please send an electronic draft of the disclosure form to the IP Officer for review prior to obtaining signatures.

Once reviewed for completeness and accuracy, the completed and signed form should be returned to the IP Officer via email at ip.officer@utoronto.ca, in-person, or by mail.

If you need any assistance, please contact the IP Officer.