

COLLABORATIVE RESEARCH AGREEMENT  
BETWEEN  
NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS  
TECHNOLOGY, JAPAN  
AND  
SURANAREE UNIVERSITY OF TECHNOLOGY, THAILAND

The followings were agreed between the National Institute of Information and Communications Technology (hereinafter referred to as “NICT”) and Suranaree University of Technology (hereinafter referred to as the “SUT”) regarding the implementation of the collaborative research relating to “Fourier-Domain Optical Signal Processing” (hereinafter referred to as the “Collaborative Research”) and the treatment of the results thereof.

(Collaborative Research)

Article 1: NICT and SUT shall collaboratively implement the following research.

- (1) Subject of the Research:           Fourier-Domain Optical Signal Processing
- (2) Purpose of the Research:        Research and development of ultra-parallel optical signal processing for large-scale multi-channel signals with huge number of channels under possible low energy consumption configuration
- (3) Description of the Research:
  - a) R&D on novel optical signal processing architecture
  - b) Experimental demonstration and its application to distributed antenna systems

(Place of the Research)

Article 2: The Collaborative Research shall be implemented at the following location.

- (1) Headquarter, Koganei, Tokyo, Japan, and Asia Center, Bangkok, Thailand
- (2) SUT, Nakhon Ratchasima, Thailand

(Term of the Research)

Article 3: The Collaborative Research shall be implemented for 5 years from the date of execution of this Collaborative Research Agreement.

(Research Management)

Article 4: The Collaborative Research shall be managed integrally through mutual

close cooperation between NICT and SUT.

(Sharing of the Research Work)

Article 5: Each party shall be in charge of the respective part of the Collaborative Research specified in the Exhibit 1.

(Researchers)

Article 6: Among personnel and employees working for, or under the management of, each party, each shall have those listed in Exhibit 2 (hereinafter referred to as a “Researcher” and “Coordinator”) participate in the Collaborative Research as the researchers. Hereinafter, “a Researcher of a party”, “a Researcher of NICT”, or “a Researcher of SUT”, or similar phrases shall mean a Researcher who belongs to the applicable party, regardless of whether the personnel is employed or managed by the party.

2. NICT and SUT shall appoint the Coordinators for each as the head of the Researchers for the charge of the researches and have the Coordinators take charge of the research management referred to in the Article 4. Each Coordinator shall manage the Collaborative Research as the representative of NICT and SUT for their charge of the researches respectively. All the disclosure of information between the parties in relation to the Collaborative Research shall be made through the Coordinators of both parties.

(Cost Sharing)

Article 7: NICT and SUT shall bear its own expenses incurred in conducting the Collaborative Research.

2. The rights to any goods, equipment, or facilities acquired for implementing Collaborative Research shall belong to the party that has born the cost and/or expense thereof.

(Provision of Facilities and Equipment)

Article 8: NICT and SUT shall co-use and share the facilities for experiment and research (hereinafter referred to as "Facilities") and the equipment for experiment and research (hereinafter referred to as "Equipment") in implementing Collaborative Research as set out in Exhibit 3.

2. If, in the case of the preceding paragraph, SUT needs to use any Equipment controlled by NICT within a SUT’s Facilities, NICT and SUT shall follow the separately agreed procedure and NICT’s usage rules.

3. If, in the case of Paragraph 1, the NICT needs to use any Equipment controlled by SUT within an NICT's Facilities, the handling and procedure for the use shall be as same as provided in the preceding paragraph.

(Administration of Facilities)

Article 9: If a party uses a Facility or Equipment of other party in implementing the Collaborative Research, the other party shall be responsible for the administration of the Facility or Equipment under its own administration.

2. If a party uses, under its sole occupation, the other party's Equipment, it shall manage such an Equipment with a care of a good manager.

(Restoration to Original State)

Article 10: If, in implementing Collaborative Research, a Researcher of a party damages, or causes a loss of a Facility or Equipment of the other party, the damaging party shall be responsible for restoring the Facility or Equipment to its original state at its costs and expense, except in the case where the damage or loss is a result of natural disaster or any other cause which is hardly attributable to the damaging party.

(Compensation for Damages)

Article 11: If, in implementing Collaborative Research, a party willfully or negligently causes a damage or loss (but excluding any damage or loss caused by any special circumstance, regardless of whether such special circumstance has been or may have been foreseen) to the other party, the damaged party may claim to the damaging party for the compensation of the damage or loss.

(Patent Application)

Article 12: Application for patent (including application for patent in a foreign country) on an invention relating to technical results (hereinafter referred to as the "Research Result") obtained in Collaborative Research shall be treated as follows:

- (1) Either party may solely in its name file a patent application on any invention that has been achieved independently by a Researcher(s) of the party. In this case, the party shall notify the other party and obtain its consent in advance for such application.
- (2) If NICT and SUT file a patent application for an invention that a Researcher(s) of NICT and a Researcher(s) of SUT jointly achieved, NICT and SUT shall jointly apply for a patent in both name after the execution of a joint application

agreement in which the respective share of the patent to be held by each party is provided.

(Working of Patented Invention)

Article 13: The following shall apply to any third party's working of a patent right (including a right to obtain patent) on an invention jointly filed by both parties as a result of Collaborative Research (hereinafter referred to as "Co-owned Patent Rights"):

- (1) NICT, SUT and the third party shall agree on a working of the patent, after the consultation between both parties on the terms and conditions of such working, including the royalty.
- (2) The distribution of the royalty shall be as follows:

The royalty paid by the third party shall be distributed to each party in the same proportion as the share in the applicable Co-owned Patent Rights.

(Application mutatis mutandis to Right to Obtain Utility Model Registration, etc)

Article 14: The provisions of Article 12 and 13 shall apply with necessary modifications to the right to obtain utility model right, the utility model right, the right to obtain a design right, and the design right.

(Copyrights)

Article 15: Among the work products achieved by the Collaborative Research, the copyright of any work product that is independently created by a Researcher(s) of a party shall be solely reserved by the party.

2. Among the work products achieved by the Collaborative Research, the copyright of any work product that is jointly created by a Researcher(s) of NICT and a Researcher(s) of SUT shall be jointly held by both parties (hereinafter in this paragraph referred to as the "Joint Copyright Holders") and the use of the work product shall be as follows:

- (1) Joint Copyright Holders may jointly reserve the copyright of, obtain the protection including the registration of, maintain, such work product, and shall mutually cooperate in a process in need.
- (2) Each Joint Copyright Holder shall reserve the right to use the jointly held work product for oneself or to have a third party use the work product for the Joint Copyright Holder's own activities, without any consent by the other Joint Copyright Holder, free of charge and without any consideration for it.
- (3) If a Joint Copyright Holder authorizes a third party to use the jointly held work product not for its own operation, it shall obtain a consent by the other Joint

Copyright Holder.

- (4) NICT and SUT hereby confirms that, in the cases prescribed in the Items 1 to 3 above, each party shall not exercise the moral right.

(Handling of information)

Article 16: Any information disclosed or exchanged by or between NICT and/or SUT under this Agreement shall not constitute any expression, warranty, confirmation or undertaking in relation to infringement of a patent right or other right of a third party.

2. Either NICT and SUT may by its sole judgment decide whether or not to disclose information it had before the start of Collaborative Research and information acquired independently during the term of Collaborative Research to a third party.

3. NICT, SUT, and Researchers of NICT and SUT who engage in the Collaborative Research shall not disclose to any third party confidential information obtained by the other party through the Collaborative Research and shall use such information only for the purpose of the Collaborative Research. Each party shall take measures necessary to ensure that Researchers of it who engage in the Collaborative Research strictly comply with the above provision.

4. If a party use confidential information set out above not for the purpose of the Collaborative Research, the party shall inform the other party and obtain a prior consent by the other party. If a party commercially work or have a third party worked the work product, the party shall obtain a consent on the separately agreed terms and conditions.

(Confidential Information)

Article 17: The disclosure of the technical information (hereinafter referred to as “Confidential Information”) that is not subject to Article 12 to Article 14, has possibility to be kept in confidence, and has property value, shall be treated as follows:

- (1) Written Confidential Information disclosed by a party to the other party shall be affixed by the expressed mark that describes that the relevant Confidential Information is disclosed in confidence by the party as well as the date of the disclosure.
- (2) If Confidential Information is disclosed orally or visually by a party to the other party, both parties shall confirm it with a summarized document prepared by either party within 30 days from the disclosure. Such summary shall cover all the Confidential Information in full and, if appropriate, the summary document is affixed by the mark that the Confidential Information is of NICT or of SUT.

2. If both parties confirm that certain Confidential Information that are newly and jointly acquired by both parties in the course of the Collaborative Research is new and needed to be kept confidential, the document which describes the Confidential Information shall be affixed by the mark of "Shared Confidential Information" or other appropriate mark.

3. Both parties shall keep all Confidential Information held by a party as set out in the Paragraph 1 and the one shared by both parties as set out in Paragraph 2 in confidence, and shall not disclose, publish or divulge the Confidential Information to any other persons or institutes than itself for five years from the date of disclosure, except otherwise separately agreed by both parties. Each party may convey the Confidential Information disclosed by the other party under this Agreement only to and within the persons who need to know for the purpose of the Collaborative Research, and shall not convey it to any other persons.

4. Both parties acknowledge that the receipt of the Confidential Information shall, in any manner, obligate neither parties to set any restriction or limitation in the employment or dismissal of its employee.

5. Each parties may make an appropriate number of copies of document or summary document which contains the Confidential Information provided in Paragraph 1 and 2; provided that, in general, the distribution of such copies shall be limited to the persons who need to know the contained information, and shall protect such copies with the same level of care as for its own information of the same nature.

6. Notwithstanding any other provisions in this Agreement, the above obligation shall not apply to the following information:

- (1) the information which has already been held by the receiving party;
- (2) the information which is independently developed by the receiving party without any relation to the Collaborative Research;
- (3) the information which is or has become publicly available without violating this Agreement;
- (4) the information which is legitimately disclosed by a third party having legitimate right to the receiving party without any confidentiality obligation; and
- (5) the information which the disclosing party authorizes in writing in advance that the confidentiality clause hereunder shall not be applicable.

7. Each party may disclose the Confidential Information to comply with a judicial request, requirement or order, provided, however, that the party shall notify the other party of such request, requirement or order.

(Use of Confidential Information)

Article 18: Each party may freely use Confidential Information disclosed by the other party under Paragraph 1, Article 17 for the purpose of the Collaborative Research. Each party may let its named person or persons use the such Confidential Information for the Collaborative Research; provided that the person is subject to the obligation to keep confidentiality as provided in Article 17.

2. Each party may freely use the Confidential Information jointly held by both parties as provided in the Paragraph 2, Article 17 for its own activities. Each party may let its named person or persons use the such Confidential Information for its own activities provided that the person is subject to the obligation to keep confidentiality as provided in Article 17.

3. Notwithstanding the provisions in this Article, only the provisions of Article 15 shall apply to the use or consent to the use of work product protected by copyright even if the work product falls within the definition of the “Confidential Information”.

(Publication of Research Results)

Article 19: When a party desires to disclose or publish the Research Results of the Collaborative Research to a third party, the disclosing party shall obtain a prior consent by the other party.

2. If a party requests the other party not to disclose or publish a part of the Research Result for the reason that disclosure of the part works against the activities of the requesting party and such reason is considered as reasonable, the other party shall not disclose all or a part of the relevant part for a period that the requesting party may determine.

(Meetings)

Article 20: During the term of Collaborative Research, NICT and SUT shall hold regular meetings for reporting on the progress of Collaborative Research, results achieved, etc. and shall discuss on problems, etc. each party has encountered. Meeting procedures shall be separately determined upon mutual consultations.

(Safety Management)

Article 21: Each party shall be responsible for the safety at a location administered by the party during experimental research implemented by the other party for the Collaborative Research, except for a cause attributable to the other party.

2. If a party participates in experimental research at a location administered by the other party, it shall comply with the safety regulations and the safety instructions of the other party.

(Export Control)

Article 22: In order to implement the Collaborative Research based on this Collaborative Research Agreement, the Parties shall comply with applicable export control laws and regulations (including but not limited to the Foreign Exchange and Foreign Trade Act of Japan) and also shall follow necessary procedures thereunder.

2. The parties mutually confirm that no party shall be responsible for delays in the implementation of the Collaborative Research or any damages as a result of or relating to the delays if such delays are caused by the party complying with the applicable export control laws and regulations as well as the necessary procedure thereunder as stated in the preceding paragraph.

(Cancellation)

Article 23: If a party falls within one of the following cases, it may terminate the Collaborative Research and cancel to terminate this Agreement;

- (1) where it has become difficult to implement the Collaborative Research because of natural disaster or other force majeure; or
- (2) where a party propose to terminate the Collaborative Research and the other party agrees to do so.

2. The party that cancel this Agreement under the preceding paragraph shall not be liable for any damages of other party.

(Term of this Agreement)

Article 24: This Agreement is effective during the term of research provided in Article 3; provided, however, that the following articles shall survive for the period as provided below even after the termination of this Agreement:

- (1) Article 10, 11, 16, 17 and 19, for three years from the last date of this Collaborative Research;
- (2) Article 12, for one year from the last date of this Collaborative Research;
- (3) Article 13, for a period which the patent in relation to this Collaborative Research is effective.

(Prohibition of Transfer of the Rights)



Article 25: Both party shall not transfer all or a part of the rights or obligations under this Agreement to a third party without a written consent by the other party; provided, however, that, if a party is generally succeeded by way of consolidation, etc. the party may transfer all of its rights and obligations under this Agreement upon a notice to, and without any consent by, the other party.

(Waiver)

Article 26: Notwithstanding the provision of Article 11(Compensation for Damages), both parties shall mutually waive their damage caused by a defect (including infringement of a third party's intellectual property right) or error in the result based on the Collaborative Research, except for the damages caused by a party's gross negligence or willful misconduct.

2. The preceding paragraph shall apply to the cases where a party causes damages to the other party in relation to the result based on this Collaborative Research.
3. Paragraph 1 and 2 respectively apply to the cases where a party causes damages to the third party.

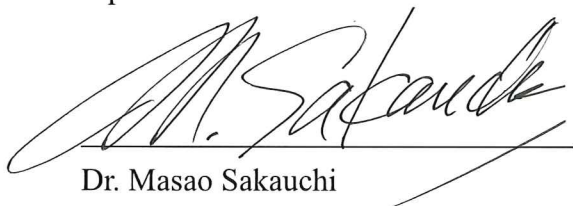
(Consultation)

Article 27: Any questions arising in connection with, or out of the performance of this Agreement and any matter not provided for herein shall be solved through mutual consultation between NICT and SUT.

2. Any dispute that cannot be resolved pursuant to the preceding paragraph shall in the first instance come solely under the jurisdiction of Tokyo District Court.
3. This Agreement shall be governed by and construed under Japanese law.

In witness whereof, this Agreement has been executed in duplicate, one copy to be held by each party.

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Dr. Masao Sakauchi  
President

Date 16 Oct. 2015



Dr. Tetsuya Miyazaki  
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Date 19 Oct. 2015

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Prof. Dr. Prasart Suebka  
Rector

Date - 7 NOV 2015



Prof. Dr. Santi Maensiri  
Dean  
Institute of Science  
Date - 9 NOV 2015

Exhibit 1

Share of Collaborative Research

Research Description	Detailed Research Description	NICT	SUT
A. R&D on novel signal processing architecture	a. Numerical simulation	2	1
	b. Architecture construction	2	1
B. Experimental demonstration and its application to distributed antenna systems	a. Experimental demonstration	1	2
	b. Application study for distributed antenna systems	1	2

- “1” indicates the party that takes the primary responsibility, and “2”, secondary responsibility.

Exhibit 2

Coordinators of Collaborative Research

	Name	Division and Office Title	Research in Charge
NICT	Tetsuya Kawanishi	Managing Director, Photonic Network Research Institute	B, (A)
	Atsushi Kanno	Senior researcher, Lightwave Devices Laboratory, Photonic Network Research Institute	B, (A)
SUT	Joewono Widjaja	Professor, Institute of Science	A, (B)

Exhibit 3

Provision of Facilities and Equipment for Experimentation and Research

		Name	Quantity	Place of use	Remarks
NICT	Facility	Headquarter Experimental room and Asia Center Experimental room	-	-	
	Equipment	Free-space optical system	1	Headquarter and Asia Center	
SUT	Facility	Laboratory, SUT	-	-	
	Equipment	Free-space optical system	1	SUT	

## สรุปลสารสำคัญ

(ร่าง) ข้อตกลงความร่วมมือด้านการวิจัยระหว่าง

National Institute of Information and Communication Technology ประเทศญี่ปุ่น

และมหาวิทยาลัยเทคโนโลยีสุรนารี

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1. **สรุปลสารสำคัญ** : (ร่าง) ข้อตกลงความร่วมมือด้านการวิจัยระหว่าง National Institute of Information and Communication Technology ประเทศญี่ปุ่น และมหาวิทยาลัยเทคโนโลยีสุรนารี ( Collaborative Research Agreement between National Institute of Information and Communication Technology, Tokyo, Japan and Suranaree University of Technology, Nakhon Ratchasima, Thailand) สรุปลสารสำคัญ ดังนี้

1.1 **หน่วยงานเจ้าของเรื่อง** : สาขาวิชาเทคโนโลยีเลเซอร์และโฟตอนิกส์ สำนักวิชาวิทยาศาสตร์ (ได้รับความเห็นชอบจากที่ประชุมคณะกรรมการประจำสำนักวิชาวิทยาศาสตร์ ครั้งที่ 29/2557 วันที่ 11 พฤศจิกายน 2557)

1.2 **วัตถุประสงค์** : เพื่อส่งเสริมความร่วมมือและพัฒนาศักยภาพทางวิชาการและการวิจัย

1.3 **กิจกรรม** : บันทึกความเข้าใจระหว่างสองฝ่ายจะครอบคลุมเนื้อหา ดังนี้

- ทั้งสองฝ่ายจะร่วมกันดำเนินการวิจัยในหัวข้อ Fourier-Domain Optical Signal Processing โดยใช้สถานที่ Koganei Headquarter กรุงโตเกียว ประเทศญี่ปุ่น เอเชียเซ็นเตอร์ กรุงเทพมหานคร และ มหาวิทยาลัยเทคโนโลยีสุรนารี จังหวัดนครราชสีมา ประเทศไทย
- ทั้งสองฝ่ายจะร่วมใช้และดูแลรับผิดชอบอุปกรณ์หรือสิ่งอำนวยความสะดวกสำหรับการดำเนินการวิจัย
- หากนักวิจัยฝ่ายใดฝ่ายหนึ่งทำอุปกรณ์หรือสิ่งอำนวยความสะดวกของอีกฝ่ายหนึ่งเกิดความเสียหายหรือสูญหาย ฝ่ายนั้นต้องรับผิดชอบค่าใช้จ่ายในการซ่อมแซมให้ใกล้เคียงเดิม เว้นแต่ความเสียหายหรือสูญหายนั้นเกิดจากภัยธรรมชาติหรือเหตุอื่น ๆ ที่ไม่ได้เกิดขึ้นจากฝ่ายผู้ใช้งาน
- หากฝ่ายใดฝ่ายหนึ่งจงใจหรือประมาทอันเป็นเหตุให้เกิดความเสียหายหรือสูญหายต่ออุปกรณ์หรือสิ่งอำนวยความสะดวกของอีกฝ่ายหนึ่ง (ยกเว้นความเสียหายหรือสูญหายที่เกิดจากเหตุการณ์ใด ๆ ที่เคยเกิดขึ้นหรือทราบว่าจะเกิดขึ้น) ฝ่ายที่ได้รับความเสียหายสามารถเรียกร้องค่าเสียหายจากอีกฝ่ายหนึ่งได้

1.4 **การเงิน** : ทั้งสองฝ่ายจะต้องรับผิดชอบค่าใช้จ่ายเองที่เกิดขึ้นในการดำเนินการร่วมมือในการวิจัย

1.5 **ระยะเวลา** : ข้อตกลงนี้มีผล 5 ปี นับตั้งแต่วันที่ลงนาม ทั้งสองฝ่ายอาจยุติความร่วมมือและยกเลิกข้อตกลงได้หากเกิดอุปสรรคในการดำเนินการภายใต้ข้อตกลง เช่น ภัยธรรมชาติ เหตุสุดิวสัยอื่น ๆ หรือทั้งสองฝ่ายเห็นชอบร่วมกัน

2. ข้อมูลเกี่ยวกับสถาบัน : National Institute of Information and Communication Technology (NICT) เป็นสถาบันวิจัยแห่งชาติด้านสารสนเทศและการสื่อสาร ก่อตั้งขึ้นเมื่อปี ค.ศ. 2004 ณ เมืองคาทากะ กรุงโตเกียว ประเทศญี่ปุ่น ซึ่งเกิดจากการร่วมกันระหว่างห้องปฏิบัติการวิจัยด้านการสื่อสาร ประเทศญี่ปุ่น และองค์กรความก้าวหน้าด้านโทรคมนาคม โดยมีพันธกิจคือ การดำเนินการวิจัยและพัฒนาด้านเทคโนโลยีสารสนเทศและการสื่อสาร