日本・アジア青少年サイエンス交流事業（さくらサイエンスプラン，科学技術研修コース）
「数理最適化分野における最先端研究の理論と応用を学ぶ研修プログラム」
Learn-By-Doing Program for Advanced Theory and Application on Mathematical Optimization (MathOpt2019)
Feb.18 (Mon)–Feb.23 (Sat), 2019
PROGRAM

We are very pleased to announce our international activities between 10 sisterhood universities and Niigata University as a winter season's SAKURA Exchange Program in Science held in Niigata Univ., Feb.17–24, 2019. We will provide the theory and applications of several world leading researches in the field of mathematical optimization to the visiting students. Through this program, we invite international students from East Asian universities that have international relationships with Niigata University in order to provide mathematical seminar and training program for next generation researchers in the field of science and technology and to activate international exchanges. It also aims to develop research cooperation among Japanese and foreign students through several activities including study tours on snow & ski and workplace. It is expected that there will be more fruitful research cooperation and achievements.

Feb. 18 (MON)

Opening Ceremony (Room: Science building A317（理学部棟 A317）, Chairman: Tamaki Tanaka)

9:30–9:40	**Dean's Opening Address:** Prof. Mitsugu Maeno (Dean, Faculty of Science, Niigata University)
9:40–10:10	**Introduction of Niigata University:** Prof. M. Satish-Kumar (Vice-Dean, Faculty of Science, Niigata University)

Break

10:20–11:40 **Introduction of sisterhood universities with self-Introductions of participants:**
Pukyong National University (PKNU, Korea, 釜慶大学), Iligan Institute of Technology, Mindanao State University (MSU, Philippines, ミンダナオ州立大学), Naresuan University (NSU, Thailand, ナレースワン大学), King Mongkut's University of Technology Thonburi (KMUTT, Thailand, モンクット王トンブリ工科大学), National Tsing-Hua University (NTHU, Taiwan, 国立台湾清華大学), National Cheng Kung University (NCKU, Taiwan, 国立成功大学), National Sun Yat-Sen University (NSYSU, Taiwan, 国立中山大学), National Changhua University of Education (NCUE, Taiwan, 国立彰化師範大学), National Taiwan Normal University (NTNU, Taiwan, 国立台湾師範大学), National Kaohsiung Normal University (NKNU, Taiwan, 国立高雄師範大学)

Lunch

13:00〜20:00 **City Bus Tour:**
朱鷺メッセ，北方文化博物館，瓢湖，城山温泉
Toki Messe, Northern Culture Museum, Hyoko Lake, Shiroyama Onsen (hot spring and dinner), and return the hotel and then the campus. Please prepare some money for your dinner and bring a facecloth (or a washcloth) and a bath towel in case that you enjoy the hot spring.

Feb. 19 (TUE)

9:15～11:15	**Intensive course lectured by Prof.Tanaka** Mathematical Optimization and Operational Research
11:25～11:45	**Science Museum** On the way to the restaurant, please enjoy the science museum in Science Building.
LUNCH	
13:00～13:20	**Hou-An Chen (National Cheng Kung University, Taiwan)** Combination of two optimization techniques
13:20～13:40	**Zhe Hong*, Nak Eun Cho, Do Sang Kim (Pukyong National University, Korea)** On optimality conditions in convex optimization with locally Lipschitz constrains
13:40～14:00	**Wanseok Lee, Shuailing Yang* (Pukyong National University, Korea)** Defining equations of rational curves in smooth quadric surface
Break	
14:15～14:35	**Jan Harold Alcantara*, Jein-Shan Chen (National Taiwan Normal University, Taiwan)** Neural networks based on three classes of NCP-functions for solving nonlinear complementarity problems
14:35～14:55	**Yu-Hsuan Kuan*, Wei-Cheng Wang (National Tsing Hua University, Taiwan)** A gauge-invariant high-order mixed FEM scheme for TDGL equations on 2D non-convex domains
14:55～15:15	**Bui Ngoc Muoi (National Sun Yat-Sen University, Taiwan)** Local stability and local convergence of the basic trust-region method
Break	
15:25～15:45	**Aljean Faye R. Pondara*, Jocelyn P. Vilela (MSU-Iligan Institute of Technology, Philippines)** The theory of falling shadows applied to B-algebra
15:45～16:05	**Michelle T. Panganduyon*, Sergio R. Canoy Jr (MSU-Iligan Institute of Technology, Philippines)** On a graph induced by a hyper BCI-algebra
Break	
16:15–17:00	**in Room A518 (Multimedia Room)** Guidance on how to use a computer for questionnaires of the program. Please input your basic information in the excel file in order to speed up the procedure in advance, and you should give your answer in the file after the symposium on Feb.21 (Thr).

Feb. 20 (WED)

9:15～10:30   **Intensive course lectured by Prof.Tanaka**
Multiobjective Programming and Set Optimization

Break

10:45～11:30   **Guidance of ski activity by Prof.Tanaka**
For ski and snow experience course on Feb.22 (Fri) and 23 (Sat), we have an orientation on ski activity and its bus tour, and also some lecture on the steepest descent method of optimization based on an idea on the inner product of a direction vector of skiing and a gradient vector of the function whose graph is the snow surface. Each vector will vary through time but a skier can adjust the value of each inner product by changing the direction vercor and aggressive weight control with appropriate edge angles.

LUNCH

12:45～13:05   **Scholarship and Payment**
We are going to refund the support in cash to scholarship students. All participants should make their payment of the cost for the overnight Bus tour on Feb.22 (Fri) and 23 (Sat).

13:10～17:20   **Intensive course lectured by Prof.Yeboon YUN (Kansai Univ.)**
Several applications of multiobjective programming

Break

17:40～ Welcome Party held at 1st student restaurant

Feb. 21 (THU)

International Symposium on MathOpt2019 (at the Library Hall in the Main Campus Library)

9:15～9:45   **Xuefeng Liu (Niigata University, Japan)**
Approach to the solution existence proof for Navier-Stokes equation by using verified computing

Break

10:00～11:00   **Christiane Tammer (Martin-Luther-Universität Halle-Wittenberg, Germany)**
Relationships between constrained and unconstrained multi-objective optimization and application in location theory

Break

11:10～12:10   **Gue Myung Lee (Pukyong National University, Korea)**
On Approximate Solutions for Robust Convex Optimization Problems

LUNCH

13:15～14:15   **Poom Kumam (King Mongkut's University of Technology Thonburi, Thailand)**
An inertial forward-backward splitting algorithm for monotone inclusions with applications

Break

14:30～15:30   **Narin Petrot (Naresuan University, Thailand)**
Incremental type methods for additive convex minimization problems

Break

15:45～16:45   **Ruey-Lin Sheu (National Cheng Kung University, Taiwan)**
Strong duality in minimizing a quadratic form subject to two homogeneous quadratic inequalities over the unit sphere

Break (move to the science building)

17:00–17:45   **in Room A518 (Multimedia Room)**
Please make and send the answer sheets of the questionnaires to Prof.Tanaka.

Feb. 22 (FRI)

日本事情研修旅行 Bus Tour 1st day

7:00–   **Please come to the Main Gate of the campus by 6:45 for some participants.**
All participants who stay at Hotel Terminal ArtInn should check out by 7:15 and come to the bus stop in front of the Junku-do (book store) in PLAKA 1. Bus will leave the Main Gate before **7:00** and arrive at the bus stop around 7:30. When all participants get on the bus, we will leave Niigata and go to Minami-Uonuma city. At first we will visit Saifuku-Temple 西福寺（開山堂）and share the beauty of 石川雲蝶 (**Ishikawa Uncho**)'s article (URL `http://www.saifukuji-k.com/`). Photography, eating and drinking are prohibited. No wet umbrella. Next we will visit a precision plastic mold processing factory **"hakkai inc."** (URL `http://www.hakkai.co.jp/english2/about/index.html`). Please follow the instruction and do not bring pensils or other prohibited things. Downjacket and wool sweater should be left in the waiting room before entering the inside of the factory. We will overview the factory. Bus will leave the factory and arrive at the hotel (**New Greenpia Tsunan**) around noon.
We rent ski wears and ski or snowboard and then change the cloths. After lunch, there will be a ski lesson in order to get skills and several knowledge for safety and important things for snow life and winter sports.
Before the dinner in the evening, we will participate a Sky Lantarn event. Then we will enjoy the dinner in the restaurant as buffet.

Feb. 23 (SAT)

日本事情研修旅行 Bus Tour 2nd day

9:00–15:00   **Ski lesson, Lunch and free time**
Please return ski and come to the room for wear changing and return the wear by **15:00**.
15:00–15:30   **Assembly for debate**
We will take assembly and give a debrief of each experience in our program. After the assembly, please come down and get together in the lobby with your all luggage.
16:00–   **Leaving the hotel in Tsunan**
Bus will leave the hotel at **16:00** around, and go to Niigata city and arrive at Niigata station by 20:00, and at the campus around 20:40. For Thailand group, please book a shuttle bus to Echigo Yuzawa station in advance.