งานบริหารงานวิจัย บริการวิชาการ และวิเทศสัมพันธ์

บันทึกข้อความ

ส่วนงาน ศูนย์บริหารงานวิจัย สำนักงานมหาวิทยาลัย โทรศัพท์ ๓๖๑๓ โทรสาร ๓๖๐๐

ที่ ศธ ๖๓๙๒(๑๑)/ว ๔๑๒ **วันที่** ๒๔ ~~ตุลาคม ๒๕๕๗~~

เรื่อง ประชาสัมพันธ์ทุน Sophia Lecturing – Research Grants

เรียน คณบดีคณะอุตสาหกรรมเกษตร

ด้วย Sophia University ประเทศญี่ปุ่น มีความประสงค์จะมอบทุน Sophia Lecturing–Research Grants ประจำปี ๒๐๑๖ ให้แก่คณาจารย์และนักวิจัย โดยมีวัตถุประสงค์เพื่อส่งเสริมความร่วมมือด้านวิทยาศาสตร์และเทคโนโลยี ระหว่าง Sophia University กับสถาบันการศึกษาต่างๆ ในเอเชีย

<u>คุณสมบัติผู้สมัคร</u> ดังนี้

๑. ต้องเป็นอาจารย์ประจำของมหาวิทยาลัย หรือเป็นผู้ช่วยอาจารย์ในมหาวิทยาลัย

๒. ต้องมีความเชี่ยวชาญในด้าน Engineering หรือ Mathematics หรือ Natural Sciences

๓. ต้องนำเสนอแผนในการทำวิจัยที่ Sophia University

<u>เงื่อนไขการให้ทุนและงบประมาณที่ได้รับการสนับสนุน</u> ดังนี้

๑. ทุนต่อเนื่องไม่เกิน ๓ เดือน ในระหว่างปีการศึกษา ๒๐๑๖ (๑ เมษายน ๒๐๑๖ – ๓๑ มีนาคม ๒๐๑๗)

๒. สนับสนุนค่าใช้จ่ายรายวันในอัตรา ดังนี้

- Visiting Prof., Visiting Assoc. Prof., Visiting Assist. Prof. และ Visiting Lecturer จะได้รับค่าใช้จ่าย ๕,๐๐๐ เยน (ประมาณ ๑,๕๔๗ บาท) ต่อวัน
- Visiting Researcher และ Visiting Assistant จะได้รับค่าใช้จ่าย ๔,๐๐๐ เยน (ประมาณ ๑,๒๓๗ บาท) ต่อวัน

๓. สนับสนุนที่พักในมหาวิทยาลัย

๔. ผู้รับทุนจะต้องรับผิดชอบค่าใช้จ่ายในการเดินทาง ระหว่างประเทศและภายในประเทศญี่ปุ่นเอง

ผู้ที่สนใจสมัคร สามารถส่งใบสมัครไปยังที่อยู่ตามเอกสารแนบได้โดยตรง **<u>ภายในวันที่ ๓๑ พฤษภาคม ๒๕๕๘</u>** ทั้งนี้ แหล่งทุนจะประกาศผลผู้ได้รับการคัดเลือก ในเดือนกันยายน ๒๕๕๘

จึงเรียนมาเพื่อโปรดพิจารณาประชาสัมพันธ์ให้คณาจารย์และนักวิจัยในสังกัดของท่านทราบด้วย จักขอบคุณยิ่ง

(รองศาสตราจารย์ ดร.คมกฤต เล็กสกุล)
ผู้อำนวยการศูนย์บริหารงานวิจัย

เรียน รองวิจัย ฯ

- เนื่องด้วย ทางศูนย์บริหารงานวิจัย ได้แจ้งประชาสัมพันธ์ทุน Sophia Lecturing - Research Grants ทางงานวิจัย ฯ โดยมีกำหนดการรับสมัคร ถึงวันที่ 31 พ.ค. 2558

- ขึ้งเรียนมาเพื่อทราบ และโปรดพิจารณาทั้งนี้งานวิจัยเห็นควรแจ้งประชาสัมพันธ์

สิริลักษณ์
27 ต.ค 57
27-10-57
27 ตค. 57

☑ ทราบ
☑ ดำเนินการตามเสนอ
☐ เห็นควรอนุมัติ
☐ .....

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SOPHIA UNIVERSITY
FACULTY OF SCIENCE AND TECHNOLOGY

FACULTY MEMBERS AND THEIR FIELDS OF RESEARCH

April, 2016 – March, 2017

SOPHIA UNIVERSITY

7-1 Kioi-cho, Chiyoda-ku, Tokyo, 102-8554, Japan

SOPHIA LECTURING - RESEARCH GRANTS

Sophia University has established a Science and Technology Exchange Committee (**STEC**) to promote the interchange of science and technology with academic institutions in Asia.
Since the inception of our committee, a number of faculty members have already been exchanged under its auspices.
One of our programs to promote such academic exchange is offering **"SOPHIA LECTURING - RESEARCH GRANTS"** to a number of selected applications each year.

T. Hayashita

Takashi HAYASHITA
President
Sophia University

Application Period:

For 2016 Academic Year (April 1, 2016 - March 31, 2017)

May 31, 2015 Deadline for submitting a completed application
September, 2015 Applicants are informed of whether grant will be offered or not.

Requirements:

1. An applicant must hold the rank of full - time professor, associate or assistant professor, instructor, or assistant at a 4-year university.
2. An applicant must specialize in one of the following fields: engineering, mathematics, or natural sciences.
3. An applicant must present a definite plan for his or her research at Sophia University.
   (Please refer to the booklet **"FACULTY MEMBERS AND THEIR FIELDS OF RESEARCH".**)

Conditions of Grant:

1. Grants are for a consecutive period of no longer than three months during the academic year (April to March 31 of the following year).
2. Daily maintenance stipend:
   5,000 yen per day for those invited as "Visiting Professor", "Visiting Associate Professor"
   5,000 yen per day for those invited as "Visiting Lecturer", "Visiting Assistant Professor"
   4,000 yen per day for those invited as "Visiting Researcher", "Visiting Assistant"
3. Housing is provided free at university guest house.
4. Expenses for travel to and from Japan, as well as for travel within Japan, are not paid by Sophia.

* We enclose a sample application form. Please make a copy and use it.

Further inquiries should be directed to:

Prof. Tetsuhiro Tsukiji
STEC Coordinator
Faculty of Science and Technology
Sophia University
7-1 Kioi-cho, Chiyoda-ku, Tokyo 102-8554, Japan
TEL: +81-3-3238-3300 FAX: +81-3-3238-3500

SOPHIA LECTURING - RESEARCH GRANTS

Photo
40mm×30mm

Name: _____ _____ SEX: ☐ Male ☐ Female
(Family Name) (Given Name)

Residential Address: _____
_____

Date of Birth: ____/____/____ Marital Status: _____
(Month) (Day) (Year)

Name of Institution: _____

Address: _____
_____

TEL: _____ FAX: _____

E-mail: _____

Present Employment: date begun: ____/____/____
(Month) (Day) (Year)

Present Position: ☐ Professor ☐ Associate Professor ☐ Assistant Professor
☐ Researcher ☐ Assistant ☐ Other ( )

Educational History: Last Degree Obtained: _____ Date: ____/____/____
(Month) (Day) (Year)

Institution: _____

Major Area of Research and Teaching: _____

Program of Research at Sophia:

1. Department: _____

2. Professor contacted (if any) : _____

3. Desired Period of Research: from ____/____/____ to ____/____/____
(Month) (Day) (Year) (Month) (Day) (Year)

Additional Documents (attach to this application)

1. A detailed plan for research at Sophia
2. A list of your principal publications & Curriculum Vitae
3. A recommendation letter from your department head

I certify the above information to be correct to the best of my knowledge and belief.

Date: ____/____/____ _____
(Month) (Day) (Year) (Signature)

TABLE OF CONTENTS

DEPARTMENT OF MATERIALS AND LIFE SCIENCES

AZUMA, Yoshiro (Professor)
https://sites.google.com/site/sophiaazumalab/home
Research field: Atomic and Molecular Physics
Main theme:
- Multi-electron photoexcitation of atoms and molecules
- Synchrotron radiation science

CHIBA, Atsuhiko (Associate Professor)
Research field: Behavioral Neuroscience
Main theme:
- Studies on the molecular basis and neuronal mechanism of the amphibian circadian clock
- Behavioral and neuroendocrinological studies of sexual odor preference in rodents

DANIELACHE, Sebastian Oscar (Assistant Professor)
Research field: Atmospheric Chemistry
Main theme:
- Atmospheric modeling for contemporary and Archean atmosphere
- Theoretical calculations spectral properties
- Spectral measurements of ultraviolet absorption properties
- Application of stable isotopes to atmospheric systems

ENDO, Akira (Associate Professor)
http://www.mls.sophia.ac.jp/~analysis/
Research field: Electrochemistry, Coordination Chemistry
Main theme:
- Synthesis and electrode reaction of dinuclear β-diketonato ruthenium complex
- Control of mixed-valence state by molecular recognition

- Electrochemical molecular recognition by β-diketonato ruthenium / dendrimer complex
- Electrochemical properties of gold nanoparticles modified by ruthenium complexes

FUJITA, Masahiro (Associate Professor)
http://www.mls.sophia.ac.jp/~polymer/index.html
Research field: Polymer Chemistry, Organic Chemistry
Main theme:
- Synthesis and characterization of ion conductive polymers
- Development of functional ionic liquids for lithium ion transport
- Synthesis of organic ionic plastic crystals and their electrochemical properties
- Ionic liquids as new solvents for dissolution of polysaccharide

FUJIWARA, Makoto (Associate Professor)
http://rscdb.cc.sophia.ac.jp/Profiles/70/0006951/prof_e.html
Research field: Molecular Cell Biology, Plant Science
Main theme:
- Genetic control of chloroplast division
- Live imaging of plant cell organelles

HASHIMOTO, Takeshi (Assistant Professor)
http://www.mls.sophia.ac.jp/~analysis/
Research field: Analytical Chemistry, Coordination Chemistry
Main theme:
- Ion and molecule recognition based on metal complexes chemistry
- Electrochemical studies for (β-diketonato) ruthenium complexes
- Design of supramolecular chemosensors for ion and molecule recognition in water

HAYASHI, Kensuke (Professor)
Research field: Cell Biology, Developmental Neuroscience
Main theme:
- Development of the axon and dendrites in mammalian neurons
- Cell migration during the neuronal development

HAYASHITA, Takashi (Professor)
http://www.mls.sophia.ac.jp/~analysis/
Research field: Analytical Chemistry, Supramolecular Chemistry
Main theme:
- Development of novel sensing and separation systems for innovation in chemical analysis
- Design of supramolecular chemosensors for ion and molecule recognition in water
- Studies on synthesis, reaction and characterization of the photo-functional and electro-functional metal complexes for molecular recognition

HORIKOSHI, Satoshi (Associate Professor)
http://pweb.cc.sophia.ac.jp/horikosi/
Research field: Green Chemistry, Energy & Fuel Chemistry
Main theme:
- Environmental protection with photocatalyst
- Organic synthesis in microwave green chemistry
- Hydrogen storage with novel microwave catalyst

HOSHINO, Masamitsu (Associate Professor)
http://www.ph.sophia.ac.jp/~tana-ken/index.html
Research field: Atomic and Molecular Physics
Main theme:
- Excitation of atoms / molecules by low energy electron / positron / ion impact
- Core excitation of molecules by synchrotron radiation
- Negative ion formation from dissociative electron attachment

ITATANI, Kiyoshi (Professor)
Research field: Industrial Inorganic Chemistry, Biomaterials, Luminescence Materials, High-temperature Structural Ceramics
Main theme:
- Development of novel biomaterials (inorganic-organic composites)
- Luminescence properties of novel oxynitride materials
- Mechanical properties of non-oxide ceramics

KANZAWA, Nobuyuki (Professor)
http://www.mls.sophia.ac.jp/~kanzawa/home/en/
Research field: Biochemistry, Plant Molecular Biology
Main theme:
- Regulatory mechanism of the seismonastic movement of Mimosa plant
- Biochemical characterization of a novel invertebrate enzyme
- Biochemical engineering of an advanced bioceramics

KAWAGUCHI, Mari (Assistant Professor)
Research field: Molecular Evolutionary Biology
Main theme:
- Evolution of reproductive strategy of fishes
- Molecular evolution of brood pouch from seahorses and pipefishes
- Mechanism of sub-functionalization of duplicated genes during evolution

KIKAWADA, Yoshikazu (Associate Professor)
Research field: Geochemistry, Environmental Chemistry
Main theme:
- Geochemical monitoring of volcanic activity
- Chemical behavior of pollutants in the environment
- Mobility and distribution of trace elements in water-rock interaction

KOBAYASHI, Kenichiro (Associate Professor)
Research field: Animal Biochemistry, Environmental Biology
Main theme:
- Comparative biochemistry of Amphibia
- Adaptation of anurans to their environments

KONDO, Jiro (Assistant Professor)
http://pweb.cc.sophia.ac.jp/jkondo/index-e.html
Research field: Biophysics, Structural Biology
Main theme:
・Motion picture crystallography of DNA/RNA molecular switches
・Structure based drug and material design

KUZE, Nobuhiko (Associate Professor)
Research field: Physical Chemistry, Molecular Science
Main theme:
・Molecular spectroscopy (rotational and vibrational) in the gas-phase
・Structural determination by gas-electron diffraction
・Computational chemistry

MAKINO, Osamu (Associate Professor)
Research field: Molecular Genetics, Molecular Biology
Main theme:
・Studies on translational control by RNA binding protein
・Replication mechanism of linear DNA with terminal protein
・Molecular mechanism of homologous recombination

NAGAO, Hirotaka (Professor)
Research field: Coordination Chemistry, Bioinorganic Chemistry
Main theme:
・Activation and conversion of nitrogen-containing compounds by transition metal complex
・Synthesis of novel transition metal complexes
・Regulation of geometry and reactivity around metal centers

NANBU, Shinkoh (Professor)
http://pweb.cc.sophia.ac.jp/nanbu_lab/index.html
Research field: Theoretical Chemistry
Main theme:
・Theory-Aided Molecular Design

・Quantum Reaction Dynamics

ODAGIRI, Takeshi (Associate Professor)
http://sephiroth.mls.sophia.ac.jp/teacher/archives/000086.html
Research field: Atomic and molecular physics
Main theme:
・Reaction Kinetics

OI, Takao (Professor)
http://sephiroth.mls.sophia.ac.jp/teacher/archives/000035.html
Research field: Isotope Science and Technology
Main theme:
・Isotope separation by chemical methods
・Precision measurement of isotopic ratios by double focusing mass spectrometry
・Isotope effects studied by molecular orbital calculations

OKADA, Kunihiro (Associate Professor)
Research field: Atomic and Molecular Physics, Quantum Electronics
Main theme:
・Gas-phase ion-molecule reactions at very low temperatures
・Production of ion Coulomb crystals and cold molecular ions
・Laser and microwave spectroscopy of trapped unstable nuclear ions

RIKUKAWA, Masahiro (Professor)
http://www.mls.sophia.ac.jp/~polymer/index.html
Research field: Polymer Chemistry, Nano Science
Main theme:
・Proton conducting polymer electrolytes and fuel cell applications
・Synthesis and applications to medical materials of biodegradable polymers
・Synthesis and applications to solar cells and EL devices of conducting Polymers

SAITO, Tamao (Professor)
http://rscdb.cc.sophia.ac.jp/Profiles/69/0006815/prof_e.html
Research field: Environmental Molecular Biology, Biochemistry
Main theme:
- Analysis of small molecules (especially "polyketides") for communication and ecology
- Functional analysis of novel polyketide synthases found in the cellular slime mould
- Pattern formation of the cellular slime mould as a model system

SUZUKI, Nobuhiro (Assistant Professor)
Research field: Plant Molecular Biology, Plant Physiology
Main theme:
- Molecular mechanisms regulating different types of heat stress response in plants
- Response of plants to stress combinations

SUZUKI, Noriyuki (Professor)
http://www.mls.sophia.ac.jp/~orgsynth/
Research field: Synthetic Organic Chemistry, Organometallic Chemistry
Main theme:
- Synthesis of five-membered metallacyclic alkynes and allenes, and study of their reactivity
- Development of organic reactions using organozirconium compounds

SUZUKI, Yumiko (Associate Professor)
http://www.mls.sophia.ac.jp/~yumiko_suzuki/
Research field: Synthetic Organic Chemistry, Medicinal Chemistry
Main theme:
- Design and Development of New Methodologies in Organocatalysis
- Synthesis of Functional Materials and Bioactive Compounds

TAKAHASHI, Kazuo (Associate Professor)
http://sephiroth.mls.sophia.ac.jp/teacher/archives/000039.html

Research field: Physical Chemistry, Chemical Kinetics, Combustion Chemistry
Main theme:
- High-pressure autoignitions of gasoline components for HCCI engines
- Combustion chemistry of biomass fuels
- Computational chemistry using ab initio MO and DFT methods

TAKEOKA, Yuko (Associate Professor)
http://www.mls.sophia.ac.jp/~polymer/index.html
Research field: Polymer Chemistry
Main theme:
- Development of organic-inorganic hybrid
- Electrical and optical properties of polymer materials
- Synthesis and applications to medical materials of biodegradable Polymers

TANAKA, Kunihito (Associate Professor)
http://www.mls.sophia.ac.jp/~tanaka/
Research field: Applied Physical Chemistry, Plasma Chemistry
Main theme:
- Surface treatment and thin film deposition by atmospheric pressure glow plasma discharge
- Plasma diagnostic of atmospheric pressure glow plasma

UCHIDA, Hiroshi (Associate Professor)
http://pweb.cc.sophia.ac.jp/h-uchida
Research field: Material Science (Inorganic), Chemical Processing
Main theme:
- Thin film processing using metal-organic precursors
- Pb-free dielectric/ferroelectric materials with large polarization properties
- Material synthesis using supercritical fluid

USUKI, Toyonobu (Associate Professor)
http://www.mls.sophia.ac.jp/~usuki/
Research field: Natural Product Chemistry, Organic Chemistry
Main theme:

- Bioorganic study of plant natural products
- Chemistry of enediyne antitumor antibiotic calicheamicin
- Structual elucidation of elastin peptides

YASUMASU, Shigeki (Professor)
Research field: Developmental Biology
Main theme:

- Differentiation of fish hatching gland cells
- Molecular evolution of hatching enzyme gene
- Mechanism of egg envelope digestion by hatching enzyme

DEPARTMENT OF ENGINEERING AND APPLIED SCIENCES

ADACHI, Tadashi (Associate Professor)
Research field: Superconductivity, New Functional Materials
Main theme:
- Muon-spin-relaxation study of the spin dynamics in Cu-based and Fe-based high-Tc superconductors
- Novel charge-spin order/fluctuation studied by transport properties in high magnetic fields
- Synthesis of novel functional materials by the solid-state reaction, flux and floating-zone methods

DZIEMINSKA, Edyta (Assistant Professor)
Research field: Combustion, Shock Waves
Main theme:
- Deflagration-to-Detonation Transition problem
- Numerical simulation of detonation
- Flame propagation

EMA, Kazuhiro (Professor)
http://soliton.ph.sophia.ac.jp/
Research field: Optical Physics, Optical Properties of Solids, Photonics
Main theme:
- Excitonic optical properties of semiconductors, organic materials, and inorganic-organic hybrid materials
- Ultrafast dynamics of excited states in solids
- Optical properties of semiconductor nanostructures
- Generation and control of coherent phonons in wide-gap semiconductors
- Ultrafast optical pulse control and its application for optical Communications

GOTO, Takayuki (Professor)
Research field: Low Temperature Condensed State Physics
This laboratory studies magnetic and superconducting properties of strongly-correlated electron systems at low temperatures by microscopic probes of nuclear magnetic resonance (NMR) and muon spin relaxation (μSR)
Main theme:
- The ground state and various quantum phase transitions in quantum spin systems
- The effect of the incoherent local structure on the superconductivity in high-Tc superconductors
- Superconducting properties including the novel vortex state in organic complexes

HIRANO, Tetsufumi (Professor)
Research field: Hadron physics (theory)
Main theme:
- Quark gluon plasma
- High energy nuclear collision
- Relativistic hydrodynamics

HISAMORI, Noriyuki (Associate professor)
http://www.me.sophia.ac.jp/~hisamori/
Research field: Biomaterial Science, Material Science and Engineering
Main theme:
- Bio-functional materials for advanced medical technology
- Metallic biomaterials and Bioactive materials
- Strength and fracture of materials
- New surface modification processes

ICHIYANAGI, Mitsuhisa (Associate Professor)
Research field: Heat Transfer Engineering, Engine System Engineering
Main theme:
- Heat transfer analysis in engine systems
- Experimental analysis of micro-and nano-scale transport phenomena
- Evaluation of heat transfer characteristics in next-generation semiconductor devices
- Development of laser-based measurement technique

KIKUCHI Akihiko (Associate Professor)
Research field: Semiconductor Engineering, Optoelectronics, Nano Technology
Main theme:
- Inorganic/organic hybrid devices(light emitting diode, laser diode, solar-cell etc.)
- Growth and characterization of III-nitride semiconductor nano-crystal and epitaxial film
- Development of nano-structural optoelectronic semiconductor devices
- Development of novel semiconductor materials and devices

KISHINO, Katsumi (Professor)
Research field: Optoelectronics, Nano-technology, Wide-gap Semiconductors
Main theme:
- Green light semiconductor lasers
- Wide-gap semiconductors and related optical devices
- Semiconductor nano-structure and nano-devices

KUNUGITA, Hideyuki (Assistant Professor)
Research field: Optical Physics, Optical Properties of Solids
Main theme:
- Ultrafast spectroscopy
- Excitonic optical properties of solids
- Generation and control of coherent phonons in wide-gap semiconductors
- Carrier dynamics in photocatalytic materials

KUROE, Haruhiko (Associate Professor)
Research field: Solid-State Physics, Magnetism
Main theme:
- Raman scattering in magnetic materials under multi-extreme condition
- Magnetic and dielectric properties in multiferroic materials

KUWAHARA, Hideki (Professor)
Research field: Materials Science, Solid State Physics
Main theme:
- Exploration for novel spintronic (spin-based electronic) and multiferroic materials, e.g., giant magnetoresistive and gigantic magnetoelectric oxides
- External field control of electronic phases in strongly correlated materials: Magnetic(Electric) field control of electric-polarization or resistivity (magnetization) for next-generation high-density memories
- Design and synthesis for A-site ordered perovskite-type oxides with high phase-transition temperatures for future electronic devices
- Transport (resistivity, Hall effect, thermopower, specific heat, etc.) and magnetic properties near the Mott insulator-metal phase boundary in band-width and/or band-filling controlled systems with strong electron correlation

MIYATAKE, Masafumi (Professor)
http://miyatake.main.jp/
Research field: Electrical Energy Systems and Applications
Main theme:
- Energy-saving design and operation of rail and road transportation systems
- Energy management and control of rail and road vehicles
- Applications of renewable energy sources and storage devices

MIZUGAI, Yoshihiro (Assistant Professor)
Research field: Spectroscopy of Supre Molecules
Main theme:
- Non-linear Spectroscopy
- Simulation of Non-linear Process

MUTOH, Yasuhiko (Professor)
Research field: Control Engineering
Main theme:
- Nonlinear Control
- Adaptive Control
- Multivariable Control Systems, etc.

NAGASHIMA, Toshio (Professor)
http://www.strmech.com/nagashima/
Research field: Computational Mechanics, Structural Engineering
Main theme:
- Meshfree method
- Extended FEM
- Crack propagation simulation

NAKAMURA, Kazuya (Associate Professor)
Research field: Applied Superconductivity, Electric Power Application
Main theme:
- Fusion magnet technology
- Accelerator magnet technology
- Advanced cryogenic materials for magnets

NAKAOKA, Toshihiro (Associate Professor)
http://pweb.sophia.ac.jp/nakaoka/nakaoka.html
Research field: Nano Electronics, Semiconductor Physics
Main theme:
- Quantum optoelectronic devices
- Single electron / photon devices
- Transport phenomena and optical spectroscopy in semiconductor nanostructures

NOMURA, Ichirou (Associate Professor)
Research field: Semiconductor engineering, Optoelectronics
Main theme:
- Semiconductor materials and devices

- II-VI compound semiconductors and their applications
- Visible light emitting diodes and laser diodes

OHTSUKI, Tomi (Professor)
http://www.ph.sophia.ac.jp/~tomi/english.html
Research field: Solid State Physics (theory)
Main theme:
- Anderson localization
- Quantum Hall and quantum spin Hall effects
- Quantum network model
- Light propagation in non-uniform media

SAKAMA, Hiroshi (Professor)
Research field: Applied Physics, Surface Science.
Main theme:
- Thin films: Nucleation and growth mechanism. Epitaxy. Structure and chemical composition, Sputtering, Pulsed-laser deposition
- Transition metal oxide thin films: Growth, micro-fabrication and physical property measurement. Charge and spin order
- Surface: Structure and physical properties of solid surfaces, Phase transitions, Electron diffraction
- Photocatalyst: Reaction mechanism, Electronic structure of photocatalyst

SAKAMOTO, Haruhisa (Professor)
http://www.me.sophia.ac.jp/~h-sakamo
Research field: Precision machining, Micro machining
Main theme:
- Development of advanced machining technology for high-quality surface generation
- Environmental impact reduction in precision machining
- Development and improvement of laser micro-machining technology for three-dimensional mechanical parts

SAKAMOTO, Orie (Assistant Professor)
Research field: Power System Engineering
Main theme:
- Analysis and control of power systems
- Modeling of synchronous generators
- Stabilizing control of power systems including renewable energy sources

SHEN, Tielong (Professor)
Research field: Control Theory and Applications
Main theme:
- Robust control of nonlinear systems
- Mechanical system control
- Modeling and control of automotive systems

SHIMOMURA, Kazuhiko (Professor)
Research field: Optoelectronics, Photonic Devices, Nano Structure, Semiconductor Crystal Growth
Main theme:
- Photonic Integrated Circuits: Integration of various functional photonic devices
- Optical devices for photonic systems, such as optical switch and modulator, arrayed waveguide grating
- Quantum-dots structure for laser, SOA, switch, and nonlinear photonic devices
- Optical interconnection technology
- Selective area growth using Metal-Organic Vapor Phase Epitaxy for the control of in-plane bandgap of epitaxial layers and integration of photonic devices

SUEMASU, Hiroshi (Professor)
http://www.me.sophia.ac.jp/~suemasu/
Research fields: Structural Mechanics, Engineering of Composite Materials
Main theme:
- Structural and fracture mechanical study of damaged composite structures and structural elements

- Testing methods of composite materials
- Fracture mechanical study on adhesive structures such as joints and repairs

SUZUKI, Hiroshi (Associate Professor)
http://www.me.sophia.ac.jp/~h-suzuki/
Research field: Materials Science
Main theme:
- Modeling and simulation of deformation, fracture and diffusion kinetics of materials
- Effect of hydrogen on behavior of metallic materials

SUZUKI, Takashi (Professor)
Research field: Internal combustion engine, Heat transfer
Main theme:
- Heat flow of SI engine for control
- Energy flow analysis of hybrid engine system

TAKAI, Kenichi (Professor)
http://www.me.sophia.ac.jp/~takai/
Research field: Materials Science, Hydrogen Technology
Main theme:
- Hydrogen embrittlement mechanism of bcc, fcc and hcp metals
- Hydrogen trapping characteristic of metals measured by TDS
- Infrastructural material development for hydrogen energy society
- Interaction between hydrogen and lattice defects of metals

TAKAO, Tomoaki (Professor)
Research field: Electric Energy, Applied Superconductivity
Main theme:
- AC loss in superconducting magnet
- YBCO and Bi-2223 tapes
- Advanced cryogenic materials for magnets
- Motor for ship propulsion
- Magnetic levitation system
- Some technologies related to superconductivity

TAKAYANAGI, Kazuo (Professor)
Research field: Quantum Many-Body Problems, Condensed Matter Physics, Nuclear Physics
Main theme:
- Short range correlation and its realization as an effective interaction in electron systems and in nuclei
- Long range correlation, collective excitation and its softening, and quantum phase transitions

TAKEHARA, Shoichiro (Associate Professor)
Research field: Multibody Dynamics
Main theme:
- Motion analysis of Human body
- Motion and control of tethered system
- Design of Personal Mobility

TERUMICHI, Yoshiaki (Professor)
Research field: Multibody Dynamics
Main theme:
- Motion analysis of high speed train
- Contact mechanics between rail and wheel
- Pattern formation phenomena due to machine vibration
- Motion and control of tethered system

TSUKIJI, Tetsuhiro (Professor)
http://sophia-tsukiji.com/
Research field: Fluid Engineering
- Development of micro motor and pump using functional fluids
- Flow analyses in hydraulic control valves and pump
- Air flow using plasma actuators
- Device development using pneumatic technology

WATANABE, Mariko (Associate Professor)
Research field: Fluid Engineering
Main theme:
- Multiphase Flow
- Reactive Flow

YAGAI, Tsuyoshi (Associate Professor)
Research field: Superconducting Power Application
Main theme:
- Design DC micro grid with renewable energy resources
- Development of DC power supply system for IT devices
- Development of new energy resource use
- Stability analysis of CIC conductor for large scale magnet

DEPARTMENT OF INFORMATION AND COMMUNICATION SCIENCES

ARAI, Takayuki (Professor)

http://www.splab.net/
Research field: Speech Communication
Main theme:
- Education in acoustics, acoustic phonetics, and speech analysis
- Speech science (incl. production), hearing science (incl. perception)
- Speech signal processing for people with communication disorders

BANDAI, Masaki (Associate Professor)

http://bandailab.org
Research field: Computer Networks
Main theme:
- Network systems (wireless networks, ad hoc networks and sensor networks)
- Network protocols (medium access control, routing, transport protocols)
- Network applications

FUJII, Mamiko (Associate Professor)

Research field: Bio-medical Optics, Bio-medical Engineering
Main theme:
- Application of bio-medical optics: Development for depth-selective Diffuse
- Optical Topography
- Fundamental study of bio-medical optics: Theoretical and experimental stud of tissue characterization
- Biomedical Instrumentation: Application of electrical impedance

FURUYA, Shinichi (Associate Professor)

http://www.strikingly.com/medlab
Research field: Motor Control and Learning, Neurorehabilitation
Main theme:
- Neural control of movements in musical performance
- Musicians' medicine and maladaptive neuroplasticity

- Musical skill acquisition and rehabilitation

GOMI, Yasushi (Associate Professor)

http://pweb.sophia.ac.jp/y-gomi/en/
Research field: Algebra
Main theme:
- Representation theory of algebraic groups and Hecke algebras

GONSALVES, Tad (Associate Professor)

http://www.me.sophia.ac.jp/~t-gonsal/
Research field: Computational Intelligence, Computer Simulation, Knowledge Engineering
Main theme:
- Simulation Optimization Meta-heuristics
- Knowledge Management & Design of Expert Systems
- Ontology and Semantic Web

GOTO, Satoshi (Assistant Professor)

http://pweb.sophia.ac.jp/s-goto/en-SGoto.html
Research field: Operator Algebras and Mathematical Physics
Main theme:
- The Jones index theory of subfactors in the theory of operator algebras
- Algebraic/combinatorial aspects of subfactor theory (graphs, fusion algebras etc.) and its relation to other fields in mathematics and mathematical physics such as quantum groups, solvable lattice models, topological quantum field theory (3-dimensional topology) and rational conformal field theory

HAYASHI, Hitoshi (Associate Professor)

http://rscdb.cc.sophia.ac.jp/Profiles/73/0007245/prof_e.htm
Research field: Application of RFID and sensor networks
Main theme:
- Fundamental study of RFID and sensor networks
- Design of miniaturized and low-power microwave circuits/wireless systems

HIRATA, Hitoshi (Assistant Professor)
Research field: Analysis, Applied Analysis
Main theme:
- Nonlinear Schroedinger Equations
- Nonlinear Waves
- Biological Mathematics

IROHARA, Takashi (Professor)
http://www.me.sophia.ac.jp/~irohara/
Research field: Industrial and Systems Engineering
Main theme:
- Facility logistics in factory and warehouse
- Supply chain management/ Humanitarian logistics/ Disaster
- Environment-friendly production scheduling and logistics

ITOH, Kiyoshi (Professor)
http://lise-sophia.net/sinfosys/index-j_ISE.html
Research field: Software and Systems Engineering, Knowledge Engineering
Main theme:
- Methodology and tool for software and systems engineering
- Evaluation system for systems improvement
- Domain analysis and modeling

KATO, Takeshi (Associate Professor)
http://pweb.sophia.ac.jp/tkskato/en/
Research field: Mathematical Statistics
Main theme:
- Time series analysis
- Application of wavelet analysis to mathematical statistics and probability theory
- Asymptotic theory in statistical inference

KAWABATA, Ryo (Associate Professor)
http://lise-sophia.net/sinfosys/index-j_ISE.html
Research field: Software Engineering

Main theme:
- Knowledge Base for Systems Analysis
- Reusing Diagrams for Systems Specification

KAWANAKA, Akira (Professor)
Research field: Signal Processing, Image Information Processing
Main theme:
- Multidimensional signal processing
- Data compression for still pictures, moving pictures, and texture information for CG
- Representation and modeling of three-dimensional objects for realistic image synthesis

MIYAMOTO, Yuichiro (Associate Professor)
http://www.ics.sophia.ac.jp/miyamoto/
Research field: Combinatorial Optimization, Mathematical Programming
Main theme:
- Approximation algorithms
- Graph coloring problem and perfect graphs
- Network design and network flows

NAKASHIMA, Toshiki (Professor)
http://pweb.cc.sophia.ac.jp/toshiki/
Research field: Quantum Groups, Representation Theory
Main theme:
- Crystal Bases and Geometric Crystals
- Quantum groups at roots of unity
- q-boson Kashiwara algebras

NAKASUJI, Maki (Associate Professor)
http://www.ics.sophia.ac.jp/nakasuji/
Research field: Analytic number theory, Representation Theory
Main theme:
- Multiple Dirichlet series
- Automorphic forms and L-functions
- Selberg zeta functions and the spectral theory

NIIKURA, Takako (Associate Professor)
Research field: Neuroscience
Main theme:
- Neurodegeneration

OGAWA, Masakatsu (Associate Professor)
Research field: Wireless communication systems
Main theme:
- Wireless LAN System (Access Control, Power Saving Control, etc.)
- Sensor Network System (Access Control, Power Saving Control, etc.)
- Cellular Network System (Resource Allocation, etc.)
- Heterogeneous Wireless Network (Cooperative control, etc.)

OSHIRO, Kanako (Assistant Professor)
http://pweb.sophia.ac.jp/oshirok/
Research field: Topology, Knot Theory
Main theme:
- Surface-knot theory
- Quandle algebra

SASAKAWA, Nobuyuki (Professor)
Research field: Pharmacology, Neuroscience
Main theme:
- Spatial and temporal regulation of neurotransmitter release by physiologically active substances
- Functional roles of inositol pentakis- and hexakisphosphates in neuronal cells

SHIBUYA, Tomoharu (Associate Professor)
http://www.ts-lab.net
Research field: Coding Theory, Communication Theory, Information Theory
Main theme:
We study various coding techniques for realizing reliable digital communication. This includes an analysis of behavior of the iterative decoding algorithm, design of codes suitable for the iterative decoding algorithm, estimation of parameters of linear codes, and so on.

SUMI, Chikayoshi (Associate Professor)
Research field: Biomedical Engineering, Measurement System Engineering, Visualization
Main theme:
- Techniques of diagnosis/therapy/culture for human diseases and various functional disorders (bioelectromagnetics, biomechanics, biothermodynamics, nanomedicine, etc.)
- Techniques of nondestructive evaluations of structures/materials for environment
- Reconstructions using functional, stochastics, optimization (signal, image, function, etc.)

TAKAHASHI, Hiroshi (Associate Professor)
https://sites.google.com/site/sophiatakahashilab/
http://rscdb.cc.sophia.ac.jp/Profiles/75/0007463/prof_e.html
Research field: High speed optical fiber communication
Main theme:
- Optical signal transmission analysis
- Modulation and demodulation method for high speed transmission
- Signal processing based on combination of optics and electronics
- Planar lightwave circuit and optical waveguide devices

TAKAOKA, Eiko (Associate Professor)
http://pweb.cc.sophia.ac.jp/etl/
Research Field: Database, Web Application Development,
Programming Language Education
Main theme:
- Development of the weather visualization system and analysis of local weather data
- Application of micrometeorological data analysis to education
- Touch-typing training method
- Development of the packages for computer science education
- Understanding disorders from analysis of medical data in cooperation with community health-care

TAMURA, Yasuhisa (Professor)
http://tamuralabo.info/
Research Field: Learning Technology
Main theme:
- CSCL support with use of Natural language processing
- Tablet PC / e-textbook utilization of e-Learning
- Material and learner information repository analysis and reuse

TANAKA, Shoji (Professor)
https://sites.google.com/site/stlab10/Home
Research Field: Brain Imaging, Brain Science
Main theme:
- Imaging of higher brain functions (cognition, memory, and self)
- Network architecture of cognitive systems of the human brain
- Dynamics and network principles for brain information processing
- Statistical analysis of brain imaging data

TRIHAN, Fabien Benoit (Associate Professor)
Research field: Algebraic Geometry
Main theme: Geometric Iwasawa Theory

TSUJI, Hajime (Professor)
Research field: Algebraic Geometry, Several Complex Variables
Main theme:
- Abundance of canonical line bundles
- Study of pluricanonical systems
- Convexity and semipositivity of family of projective varieties

TSUNOGAI, Hiroshi (Professor)
http://pweb.cc.sophia.ac.jp/tsunogai/index.html
Research field: Mathematics, Number Theory
Main theme:
- Constructive Galois theory, Noether's Problem and its variants
- Galois representation attached to arithmetic fundamental groups
- Moduli spaces of projective lines with marked points

TSUZUKI, Masao (Associate Professor)
Research field: Number Theory
Main Theme:
- Modular forms and related L-functions
- Selberg zeta functions and trace formulas

YAIRI, Ikuko (Associate Professor)

http://www.yairilab.net/

Research field: Informatics, Media and Communication Science and Technology

Main theme:

Applied research:

- Barrier-free ubiquitous mobility support system
- Geographic information system for disabled pedestrian navigation
- Universal-designed interactive map contents and interfaces, etc.

Basic research:

- Spatial and graphic information representation method with sound and touch without vision
- Interactive interface design for the aged, the disabled and children
- Community support for offering spatial information, etc.

YAMANAKA, Takao (Associate Professor)

http://pweb.cc.sophia.ac.jp/takao-y/

Research field: Sensory Information Processing, Computer Vision

Main theme:

- Automatic understanding of image contents
- Object recognition / Object detection
- Saliency detection
- Palmprint recognition for biometrics