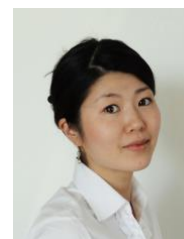


Kaori Sugihara
 Date of birth: 25.07.1983
 Nationality: Japanese
 Married with Swiss with two children (*maternity break in 2015 and 2018*)
 Email: kaori.sugihara@unige.ch



RESEARCH POSITIONS

- 2014 – present Tenure-track Assistant Professor
 Department of Physical Chemistry, University of Geneva, Geneva, Switzerland
- 2012 – 2014 Postdoctoral Researcher (Prof. Joachim P. Spatz)
 Max Planck Institute for Intelligent Systems, Stuttgart, Germany

EDUCATION

- 2008 – 2012 Dr of Sciences ETH Zurich (Prof. Janos Vörös)
 2006 – 2008 MEng in Applied Physics The University of Tokyo
 2002 – 2006 BSc in Physics Keio University

SELECTED PRIZES AND AWARDS

- 2013 Humboldt Research Fellowship for Postdoctoral Researchers
 2012 Swiss National Science Foundation Fellowships for Prospective Researchers
 2013 Education Travel Award for the Annual meeting of the Biophysical Society
 2012 Swiss Society of Biomedical Engineering Research Award
 2012 ETH Medal
 2012 Chorafas-Prize 2012

FUNDING

Project	KS			
Human stefin B	PI	COST-SNF	2020 – 2023	319,961 CHF
NCCR Chemical Biology Phase III	Co-PI	NCCR, SNSF	2019 – 2022	262,007 CHF
A breast-on-a-chip	PI	Hes.so	2019 – 2020	50,000 CHF
Immune peptides	PI	Schmidheiny	2019 – 2021	25,000 CHF
PhD scholarship	Co-PI	China Council	2018 – 2022	91,200 CHF
Purchase of a cryoTEM	Co-PI	R'Equip, SNSF	2017 – 2018	(950,000 CHF)
Mechanosensitive membranes	PI	SNSF	2016 – 2019	204,744 CHF
Nanostructures by lipids	PI	SNSF	2015 – 2020	298,473 CHF
A new mechano-assay	PI	Novartis	2015 – 2018	60,000 CHF
Membrane force sensor	PI	Ernest Boninchi	2015 – 2016	50,000 CHF
A new mechano-assay	PI	Schmidheiny	2015 – 2016	50,000 CHF
A new mechano-assay	PI	COMAD	2015	50,000 CHF
Purchase of a potentiostat	PI	ASG	2015	18,400 CHF
NCCR Chemical Biology Phase II	Co-PI	NCCR, SNSF	2014 – 2018	308,090 CHF
Total granted to my group				1,757,875 CHF (= 1,800,000 \$)

NCCR Phase III (Director: Howard Riezman and Christian Heinis), NCCR Phase II (Director: Howard Riezman and Kai Johnsson), China Council (PI: A PhD candidate Jiangtao Zhao), R'Equip (PI: Robbie Loewith), Hes.so is a collaborative project: 20,000 CHF is granted to my group (Co-PI: Mhanna Rami,

American University of Beirut, Bassil Marcel, Benta Pharma Industries), COST-SNF in collaboration with Prof. Eva Žerovnik (Research Institute Jožef Stefan, Ljubljana).

INVITED SEMINARS AND TALKS

- 2020 SFB 803-Colloquium, Universität Göttingen
- 2019 Institute of Industrial Science, University of Tokyo
- 2019 ISIPS satellite event: Workshop on Bioiontronics, Fukuoka
- 2019 Campus Straubing, Technical University of Munich (TUM)
- 2019 EPFL, Institute of Chemistry and Chemical Engineering
- 2018 University of Fribourg, NCCR Bioinspired Materials
- 2017 Tokyo Institute of Technology, Department of Innovative and Engineered Materials
- 2017 The Fifth Japan-Switzerland Workshop on Biomechanics (JSB2017)
- 2017 10th Young Faculty Meeting, University of Bern
- 2017 Institute for Bioengineering of Catalonia (IBEC)
- 2017 Institute of Material Science of Barcelona (ICMAB)
- 2017 EMPA, Department “Materials Meet Life”
- 2016 Conference of Geneva Society of Chemistry
- 2016 Final Presentation for Programme Fondation de Famille Sandoz (short listed)
- 2015 Metrohm Autolab Meeting
- 2015 Imperial College London, Department of Bioengineering
- 2014 ETH Zurich, Department of Chemical Engineering
- 2013 University of Geneva, Department of Physical Chemistry
- 2012 Annual Meeting of Swiss Society of Biomedical Engineering
- 2012 2nd Workshop between MRC-ETH and Chalmers Univ.

SUPERVISIONS

The current group is composed of 1 postdoc, 5 PhD students and 2 master students.

Advisor of postdoctoral researchers

Dr. Rosa F. Brissos	Antimicrobial peptide synergy	01.09.2018 – present
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Advisor of PhD Thesis

Levente Juhasz	Mechanochromic membranes	01.11.2018 – present
Jiangtao Zhao	Mechanochromism in nature	01.10.2018 – present
Johann Nuck	Mechanochromism by peptides	01.11.2016 – present
Ewa Drab	Antimicrobial peptide synergy	01.06.2016 – present
Kristina Jajcevic	Lipid nanotube template	01.05.2015 – present
Roberto D. Ortuso	Mechanochromic membranes	01.12.2014 – 30.08.2019
Maria Tsemperouli	Black lipid membrane applications	01.12.2014 – 31.12.2018

Advisor of Master Thesis

Chiedza P. Kanyumbu	Membrane transport	01.08.2019 – present
Ashlin M. Sequeira	Pyrolysis of lipid nanotubes	11.12.2018 – present
Clement Girard-Reydet	Polydiacetylene electrical sensors	13.10.2015 – 31.12.2016
Alexander Kozintsev	Artificial tubular connections between cells	22.02.2016 – 31.12.2016
Myrto Kyropoulou	Polydiacetylene electrical characterization	04.05.2015 – 28.09.2015
Kristina Jajcevic	Gold nanowires with a lipid template	12.01.2015 – 22.05.2015

Advisor of Semester Thesis (Short Master Internship)

Chiedza P. Kanyumbu	Membrane-active peptides	04.02.2019 – 04.04.2019
Lysi Ekmekciu	Lipid bilayer integration of polydiacetylene	17.07.2018 – 17.09.2018
Lorena Palumbo	Antimicrobial peptides in <i>E. Coli</i> membrane	02.07.2018 – 24.09.2018

Wendy Nogueira	Pyrolysis of lipid nanotubes	12.03.2018 – 27.07.2018
Camila Ferreira	Bacterial supported lipid bilayer	19.02.2018 – 19.06.2018
Elena Diamanti	Lateral force microscopy elasticity mapping	19.01.2018 – 19.03.2018
Aliénor Jeandin	Differential impedance immunoassay	14.03.2017 – 09.05.2017
Myrto Kyropoulou	Mechanochromic polymer, polydiacetylene	09.03.2015 – 01.04.2015
Elodie Buttay	Binding studies with biotin bilayers	28.10.2015 – 25.11.2015
Kristina Jajcevic	Gold nanowire with lipid nanotubes	04.11.2014 – 19.12.2014

Internal Respondent for Master Thesis in Companies

Leonida Maliqi	Ceria nanoparticles for dental implants EMPA/ETH (Prof. Inge Herrmann)	01.12.2018 – 31.11.2019
Jérémie Vesin	Development of microsampling techniques Debiopharm Group (Mr. Christophe Chardonnens)	07.01.2019 – 07.10.2019
Lorena Palumbo	Protein interactions studied by QCM Firmenich S.A. (Ms. Valeria Larcinese, Dr Philipp Erni)	03.09.2018 – 30.08.2019
Nicolas Andrey	Polymer-surfactant complexes Firmenich S.A. (Dr Valentina Valmacco)	02.07.2018 – 19.04.2019
Estelle Bois	Rheological properties microcapsules Firmenich S.A. (Dr. Estelle Rassat)	01.10.2017 – 30.06.2018
Aliénor Jeandin	Production of stable bispecific IgG1 NovImmune SA (Dr. Giovanni Magistrelli)	14.03.2017 – 09.05.2017

Advisor of Bachelor Thesis

Florian Shala	Role of lipids in prostate cancer	22.07.2019 – 26.08.2019
Lenny Bonadei	Synergistic efficacy of AMPs combination	09.08.2018 – 07.10.2018
Khiem-Tu Tran	Thermochromism of poly(ETCD)	07.11.2017
Fabian Delpy	Melittin got cancer therapy	06.04.2017

Advisor of Internships

Gael Bettoni	Polydiacetylene network	27.08.2018 – 21.12.2018
Mai Duong	Antimicrobial peptide synergistic effect	01.03.2018 – 31.07.2018
Thomas Park	Differential impedance immunoassay	15.05.2017 – 15.08.2017

Advisor of apprenticeship

Mathias Buff	Selected for AIGSV prize, Socorex prize, CFPS prize, and the best CFC of the year 2018	2017 – 2018
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TEACHING

67 h/year in total in the last academic year (September 2018 – August 2019)

Bachelor courses in the Section of Chemistry (in French)

Chimie Physique I (Physical Chemistry I: Thermodynamics)	56 h/ year	2019 – present
Chimie Physique III (Physical Chemistry III: Spectroscopy)	21 h/year	2016 – 2019
Practical Course Physical Chemistry III	2 h/year	2016 – 2019

Master courses in the Section of Chemistry (in English)

Statistical Thermodynamics	28 h/year	2018 – present
Master Course Biochemistry	4 h/year	2018 – present
Spectroscopy Method in Physical Chemistry	14 h/year	2015 – 2019
Current Topics in Chemical Biology and Biochemistry	4 h/year	2014 – 2019
Basic Techniques in Chemical Biology, Tutorial Course	4 weeks/ year	2016 – 2017

PROFESSIONAL SERVICE

Organization of conferences and seminars

- Swiss Soft Day 20 (10.02.2017, Geneva, Switzerland)
Participants 60 – 70, Co-organized with Dr. Gregor Trefalt and Dr. Kitty van Gruijthuijsen
- NCCR Lecture Series
Co-organized with Prof. Beat Fierz (EPFL) several times per year both at University of Geneva and at EPFL.
- Department Seminars
Organized a couple of times per year.

Reviewers of journal articles

Colloids and Surfaces A, The Journal of Physical Chemistry, Langmuir, Scientific Reports, Soft Matter, Lab on a Chip, Small, Sensors and Actuators B, Analytica Chimica Acta, ACS Chemical Biology, Biomacromolecules

Reviewers of proposals

- The Research Foundation Flanders (Belgian Research Grant)

Career panel

- Gordon Research Seminar Biointerface Science
June 11 – 12, 2016 (Les Diablerets, Switzerland)
- NCCR Career Seminar
July 7, 2016 (Geneva, Switzerland)

PhD thesis co-referee

- Nadezda Pankratova (Prof. Eric Bakker at the University of Geneva): “Development of Sensing Principles for Electrochemical Detection of Nutrients and Species Relevant to the Carbon Cycle” (17.01.2018)
- Giuseppe Licari (Prof. Eric Vauthey at the University of Geneva): “Second Harmonic Generation Applied to Biomimetic Interfaces” (29.03.2018)
- Annelies Sels (Prof. Thomas Bürgi at the University of Geneva): “Atomically Precise Metal Cluster Building Blocks” (22.02.2019)

COLLABORATIONS

Prof. Stefan Matile (University of Geneva): 3 collaborative papers

Prof. Tomasz Wesolowski (University of Geneva): 1 collaborative paper

Prof. Thomas Bürgi (University of Geneva): 1 collaborative paper

Prof. Esther Amstad (EPFL): 1 collaborative paper

Dr. Imma Ratera (Institut de Ciència de Materials de Barcelona, ICMAB-CSIC): student exchange

Prof. Dietrich R.T. Zahn (Technische Universität Chemnitz): 1 manuscript in preparation

CAREER BREAKS

2018 Maternity leave (5 months from 29.08.2018)

2015 Maternity leave (5 months from 17.08.2015)

LANGUAGES

Japanese	Mother tongue
English	Fluent
German	Basic
French	Basic

JOURNAL ARTICLES

Peer-review original articles unless indicated as (Review) or (Conference Report)

Submitted

30. Transparent conductive films fabricated with lipid nanotube templates
Jajcevic, K.; **Sugihara, K.***
Under review

Published

29. Black lipid membranes: challenges in simultaneous quantitative characterization by electrophysiology and fluorescence microscopy
Tsemperouli, M.; Amstad, E.; Sakai, N.; Matile, S.; **Sugihara, K.***
Langmuir **2019**, *35* (26), 8748-8757.
28. The deconvolution analysis of ATR-FTIR spectra of diacetylene during UV exposure
Ortuso, R. D.; Ricardi, N.; Burgi, T.; Wesolowski, T. A.; **Sugihara, K.***
Spectrochim. Acta. A. Mol. Biomol. Spectrosc. **2019**, *219*, 23-32.
27. Anion transport with pnictogen bonds in direct comparison with chalcogen and halogen bonds
Lee, L. M.; Tsemperouli, M.; Poblador-Bahamonde, A. I.; Benz, S.; Sakai, N.; **Sugihara, K.***; Matile, S.*
J. Am. Chem. Soc. **2019**, *141* (2), 810-814.
26. Effect of the nonspecific binding in differential impedance biosensing
Buff, M.; Drab, E.; **Sugihara, K.***
Biointerphases **2019**, *14* (1), 011004.
25. Characterization of di-4-ANEPPS with nano-black lipid membranes
Tsemperouli, M.; **Sugihara, K.***
Nanoscale **2018**, *10* (3), 1090-1098.
24. Detailed study on the failure of the wedge calibration method at nanonewton setpoints for friction force microscopy
Ortuso, R. D.; **Sugihara, K.***
J Phys Chem C **2018**, *122* (21), 11464-11474.
23. Mechanosensitive oligodithienothiophenes: transmembrane anion transport along chalcogen-bonding cascades
Macchione, M.; Tsemperouli, M.; Goujon, A.; Mallia, A. R.; Sakai, N.; **Sugihara, K.;** Matile, S.
Helv. Chim. Acta **2018**, *101* (4).
22. 2018 International symposium on chemical biology of the NCCR Chemical Biology campus biotech, Geneva 10.-12.01.2018 (Conference Report)
Kruse, K.; **Sugihara, K.***
Chimia **2018**, *72* (3), 160-164.
21. Mechanosensitivity of polydiacetylene with a phosphocholine headgroup
Ortuso, R. D.; Cataldi, U.; **Sugihara, K.***
Soft Matter **2017**, *13* (8), 1728-1736.
20. Artificial tubular connections between cells based on synthetic lipid nanotubes
Kozintsev, A.; **Sugihara, K.***

- Rsc Adv* **2017**, 7 (33), 20700-20708.
19. Self-assembled lipid structures as model systems for studying electrical and mechanical properties of cell membranes (Invited Review)
Sugihara, K.*
Chimia **2016**, 70 (11), 805-809.
 18. Gold nanowire fabrication with surface-attached lipid nanotube templates
Jajcevic, K.; Chami, M.; **Sugihara, K.***
Small **2016**, 12 (35), 4830-4836.
 17. Combined electrical and optical characterization of polydiacetylene
Girard-Reydet, C.; Ortuso, R. D.; Tsemperouli, M.; **Sugihara, K.***
J Phys Chem B **2016**, 120 (14), 3511-5.
 16. Freely drawn single lipid nanotube patterns
Sugihara, K.*; Rustom, A.; Spatz, J. P.
Soft Matter **2015**, 11 (10), 2029-2035.
 15. Artificial bacterial flagella for remote-controlled targeted single-cell drug delivery
Mhanna, R.; Qiu, F. M.; Zhang, L.; Ding, Y.; **Sugihara, K.**; Zenobi-Wong, M.; Nelson, B. J.
Small **2014**, 10 (10), 1953-1957.
 14. Label-free detection of cell-contractile activity with lipid nanotubes
Sugihara, K.; Delai, M.; Mhanna, R.; Kusch, J.; Poulikakos, D.; Voros, J.; Zambelli, T.; Ferrari, A.
Integrative biology : quantitative biosciences from nano to macro **2013**, 5 (2), 423-30.
 13. Switching transport through nanopores with ph-responsive polymer brushes for controlled ion permeability
de Groot, G. W.; Santonicola, M. G.; **Sugihara, K.**; Zambelli, T.; Reimhult, E.; Voros, J.; Vancso, G. J.
Acs Appl Mater Inter **2013**, 5 (4), 1400-1407.
 12. Electrically induced lipid migration in non-lamellar phase
Sugihara, K.*; Stucki, J.; Isa, L.; Vörös, J.; Zambelli, T.
J. Colloid Interface Sci. **2012**, 386 (1), 421-427.
 11. A universal method for planar lipid bilayer formation by freeze and thaw
Sugihara, K.*; Jang, B.; Schneider, M.; Voros, J.; Zambelli, T.
Soft Matter **2012**, 8 (20), 5525-5531.
 10. Simultaneous OWLS and EIS monitoring of supported lipid bilayers with the pore forming peptide melittin
Sugihara, K.*; Delai, M.; Szendro, I.; Guillaume-Gentil, O.; Vörös, J.; Zambelli, T.
Sens. Actuators, B **2012**, 161 (1), 600-606.
 9. Directed self-assembly of lipid nanotubes from inverted hexagonal structures
Sugihara, K.*; Chami, M.; Derenyi, I.; Voros, J.; Zambelli, T.
ACS nano **2012**, 6 (8), 6626-32.
 8. Electrochemical plasmonic sensors (Review)
Dahlin, A.; Dielacher, B.; Rajendran, P.; **Sugihara, K.**; Sannomiya, T.; Zenobi-Wong, M.; Vörös, J.

- Anal. Bioanal. Chem.* **2012**, *402* (5), 1773-1784.
7. Techniques for recording reconstituted ion channels (Review)
Demarche, S.; **Sugihara, K.**; Zambelli, T.; Tiefenauer, L.; Voros, J.
Analyst **2011**, *136* (6).
 6. The resistance of polyelectrolyte multilayers in a free-hanging configuration
Sugihara, K.*; Vörös, J.; Zambelli, T.
J. Phys. Chem. B **2010**, *114* (44), 13982-13987.
 5. A gigaseal obtained with a self-assembled long-lifetime lipid bilayer on a single polyelectrolyte multilayer-filled nanopore
Sugihara, K.; Vörös, J.; Zambelli, T.
ACS nano **2010**, *4* (9), 5047-5054.
 4. Liposome and lipid bilayer arrays towards biosensing applications (Review)
Bally, M.; Bailey, K.; **Sugihara, K.**; Grieshaber, D.; Vörös, J.; Städler, B.
Small **2010**, *6* (22), 2481-2497.
 3. Valley-splitting edge-channel transport in a Si/SiGe quantum Hall system
Sugihara, K.; Hamaya, K.; Kawamura, M.; Sawano, K.; Shiraki, Y.; Machida, T.
Physica E **2008**, *40* (5), 1523-1525.
 2. Electrical polarization of nuclear spins in a breakdown regime of quantum Hall effect
Kawamura, M.; Takahashi, H.; **Sugihara, K.**; Masubuchi, S.; Hamaya, K.; Machida, T.
Appl. Phys. Lett. **2007**, *90* (2), 022102.
 1. Spin-dependent nonlocal resistance in a Si/SiGe quantum Hall conductor
Hamaya, K.; **Sugihara, K.**; Takahashi, H.; Masubuchi, S.; Kawamura, M.; Machida, T.; Sawano, K.; Shiraki, Y.
Phys Rev B **2007**, *75* (3), 033307.

PATENTS

Chip for determination of molecular structures and functions
M. Di Berardino, J. Vörös, **K. Sugihara**, T. Zambelli
International publication number WO 2011/003586 A1

Sensor as biochip
J. Vörös, **K. Sugihara**, T. Zambelli, M. Nirschl
International publication number WO 2011/003583 A1