

Kristel Fobelets

PhD, FIET, FInstP, senior member IEEE

Reader in Microelectronics

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Department of Electrical and Electronic Engineering

Optical and semiconductor devices group

Imperial College London

Summary of Research

My initial research concentrated on III-V resonant tunneling diodes for oscillators and strain sensors, on strained silicon MOSFET technology for low power electronics and THz imaging. From 2009 I have focused on developing sustainable systems for use in energy generation, storage and sensing. I use benign materials such as silicon nanowires, TiO₂ nanoparticles, biochar and graphene. In 2012 we obtained a breakthrough in the output power performance of a “green” thermo-electric generator. A record level of 3 μW output power for a temperature difference of only 8 °C was achieved. We demonstrated that TiO₂ nanoparticle decorated Si nanowire arrays are good electrodes for supercapacitors in room temperature ionic liquids. My sensors work involves gas sensing using Si nanowires, ISFETs and graphene. Our work on the extended-gate ISFET covered with graphene has attracted great interest for its potential in future biosensing.

I invented a novel method to integrate biosensors in knitted garments. The garment is ultimately wearable and the sensors are unobtrusively integrated. The breathing sensors outperform currently available inductive respiration sensors by a factor of 50. Further work integrates temperature sensors, ECG and hydration sensors. Due to its wearability, this knitted sensor garment is uniquely placed to become a long-term wellbeing monitor.

My vision is to bring the electronics work on energy generation, storage and sensing together with the work on e-textiles designed to sit within a circular economy.

Summary of Teaching and Learning

As director of undergraduate studies, I have implemented many changes in the management of undergraduate teaching in the EEE department. Specific highlights are the undergraduate curriculum review that has led to the implementation of a new vision in teaching and learning that focuses on key skills and the equivalence between mathematical and programming knowledge for engineers. A new teaching room and BYOD approach supports this innovation in education. Another highlight is the successful implementation of the Faculty of Engineering Pedagogic Transformation initiative that gave us an expert Educational Technology Team. This team successfully support the transformation of FoE modules by using pedagogically sound technical tools to enhance learning and teaching.

My consulting activities in higher education for the University of Sierra Leone in collaboration with the Engineers for Change Sierra Leone (EfCSL), has supported transformation of teaching and student care and led to the donation of desktop computers and electrical laboratory equipment.



Appointments

- 2014-present: Director of Undergraduate Studies, Department of Electrical and Electronic Engineering.
- 2011-2014: Senior tutor, Department of Electrical and Electronic Engineering
- 2009-present: Reader in Microelectronics in the Electrical and Electronic Engineering Department, Imperial College of Medicine, Science and Technology, London, U.K.
- 2003-2009: Senior lecturer in the Electrical and Electronic Engineering Department, Imperial College of Medicine, Science and Technology, London, U.K.
- 1996-2003: Lecturer in the Electrical and Electronic Engineering Department, Imperial College of Medicine, Science and Technology, London, U.K.
- 1995-1996: Postdoctoral position in the Electrical and Electronic Engineering Department, Imperial College of Medicine, Science and Technology, London, U.K.
- 1994-1995: Postdoctoral position in Trinity College Dublin, Ireland in collaboration with Hitachi Dublin Laboratories, Ireland. I obtained a Human Capital & Mobility grant for this position.
- 1993-1994: Teaching Assistant in the Faculty of Engineering, Dept. of Electrical Engineering (ETRO), Free University of Brussels (VUB), Belgium
- 1994 PhD in Microelectronics from the University of Brussels/IMEC, Belgium.

Memberships of professional bodies and committees

- Elected Member of Senate of Imperial College London (2014 – present)
- Chair of the E-learning Implementation group, Faculty of Engineering, Imperial College (from 2017-2021)
- Patron of the Women in Engineering Society, EEE Department, Imperial College (2015 – present)
- Departmental ambassador for women, EEE department, Imperial College London (2012 – present)
- Senior Member IEEE, Fellow IET and Fellow of the Institute of Physics
- Member of the Centre for Terahertz Science and Engineering, IC, London
- Member of the Programme Committee of the International Conference on Micro and Nano Engineering, MNE 2013.
- Member of the Technical Committee of the International SiGe Technology and Device Meeting, ISTDM 2012
- Consultancy for IC Consultants Ltd – report: Decentralisation of Electrical Power (2007)
- Member of the steering committee of the Centre of Electronic Devices and Materials (CEMD) (1998-2000)
- Member of the communication committee of the Centre for Electronic Materials and Devices, CEMD (1998 -2000)

Reviewing services

- Reviewer for Department of Health – grant proposal scheme
- Reviewer for EPSRC, panel member – grant proposal scheme
- Member of Editorial board of *Journal of Semiconductors* (2016 – present)
- Reviewer for international journals from InstP, IET, IEEE
- Reviewer for World Scientific (UK) Ltd & Imperial College Press



Prizes and Nominations

- 2016 Student academic choice award nominee for excellence in feedback and assessment.
- 2015 EESoc award Biggest overall staff contributor to Your EE Experience
- 2014 EESoc Leavers Award
- 2013 EEE department nomination for Excellence in teaching.
- 2013 Student academic choice award nominee for excellence in undergraduate teaching.
- 2008 Best paper award at the MIEL conference for Microelectronics reliability.
- 2007 Best invited paper award at the WOFE workshop for the invention of the SGrFET.
- 1999 Rector's prize for Excellence in teaching, Imperial College London.
- 1994 Human Capital and Mobility Grant from the EU for research abroad (Trinity College Dublin).
- 1989 Laureate of the Belgian Universities Concourse for engineers for my MSc project.
- 1989 IWONL scholarship from Belgian Government for my PhD research.

Research

Research Assistants supervised

1. J. Hampson (1997 – 2001)
2. R. Ferguson (2001 – 2002)
3. A. Vilches (2002 – 2004)
4. A. Lohmann (2004)
5. H-S Yuk (2003 - 2004)
6. C. Li (2010 – 2013)
7. M. M. Ahmad (2012 – 2013)
8. C. Panteli (2021 – 2022)

PhD students supervised

1. W. Jeamsaksiri, "Modelling and simulation of SiGe n-channel HFETs for low power applications" (1997-2002).
2. R.S. Ferguson, "Characterisation of Silicon-Germanium Heterostructures by Kelvin Probe Force Microscopy", (1997-2002).
3. S.M. Li, "Alternative approaches to Silicon-Germanium Modulation Doped Field Effect Transistor processing", (1997 - 2003)
4. A. Vilches, "SiGe HFETs micropower circuits", (2000 - 2003)
5. V. Gaspari, "Temperature effects in SiGe Modulation Doped Field Effect Transistors", (2001 - 2004)
6. H-S Yuk, "Fabrication of SiGe-on-insulator for strained-Si heterostructure technologies", (2000 - 2004)
7. P.W. Ding, "Development of the screen-grid FET", (2004 - 2008)
8. Y. Shadrokhsikary, "Benchmarking the SGrFET", (2006 - 2010)
9. B. Xu, "Si/SiGe nanowire arrays for thermoelectric power generation", (2010 - 2014)
10. T. Rahman, "Si nanowire-based hybrid photovoltaics", (2010 - 2014)
11. A. Shougee, "Silicon nanowire arrays for supercapacitors, (2014 - 2018)
12. C. Panteli, "Hollow nanoneedles for sensing applications", (2015 - 2019)
13. A. Hamid, "Reconfigurable nanowire logic", (2016 - 2020)
14. F. K. Malik, "Thermal rectification in 2D materials", (2021 – present)



Research Funding

Source of Funds	Title of Project	Principal investigator	Duration (months)	Start Date	Total Value
EPSRC	SiGe for MOS Technologies	K. Fobelets	36	1997	£255k
DERA	SiGe MODFETs prospectives	C. Papavassiliou	12	1998	£15k
British Council (UK-ES)	SiGe MODFET for μ power applications	K. Fobelets	24	1999	£8.8k
EPSRC	SiGe for MOS Technologies, II	K. Fobelets	36	2001	£470k
EPSRC	Ultrametrology for MEMS	R.R.A. Syms	36	2001	£242k
Royal Society/Wolfson Foundation	Microstructures for nanoscale measurements	R.R.A. Syms		2002	£157k
NDS	PolySi local anneal	K. Fobelets	1	2003	£2.2k
EPSRC – pump priming project	Implantation and local anneal of polySi	K. Fobelets	1	2003	£5k
EPSRC – pump priming project	Feasibility study of the SGFET	K. Fobelets	12	2005	£30k
EPSRC	Benchmarking of the SGrFET	K. Fobelets	36	2006	£160k
EPSRC	Low frequency noise/travel grant	K.Fobelets	12	2007	£34k
EPSRC	Si/SiGe nanowire arrays for thermoelectricity	K. Fobelets	12	2007	£155k
IC-Teaching Development Grant	Development of EE-VIL	K. Fobelets/P. Mitcheson	12	2008	£1k
Royal Academy of Engineering	Distinguished visiting fellow	K. Fobelets	1	2008	£6k
E-ON	Si/SiGe nanowire arrays for thermoelectric power scavenging	K. Fobelets	36	2009	550k Euro
EPSRC	Retaining key members of staff	K. Fobelets	6	2012	£100k
David Bingham gift trust	Hardware platform for coursework and projects	K. Fobelets		2016	£34k
ICON grant	Reconfigurable nanowires for thermal rectification	K. Fobelets	36	2016	£50k
Pedagogic Transformation Imperial College London	Pedagogic transformation of on-campus modules	S. Lock and K. Fobelets	60	2018	£3.6million
EU	Interdisciplinary and Intersectorial opportunities – c-extended	J. Barria	36	2017	£100k

Publications

Regular papers.

1. J. Danckaert, K. Fobelets, I. Veretennicoff, G. Vitrant, and R. Reinisch, "Dispersive optical bistability in stratified structures", *Phys.Rev. B* 44(15), 8214 (1991)
2. K. Fobelets, J. Genoe, R. Vounckx, and G. Borghs, "Determination of the AIAs/InGaAs band offset using resonant tunnelling diodes", *Microstructures and Superlattices* 11(1), 87 (1992)
3. J. Genoe, C. Van Hoof, W. Van Roy, J. H. Smet, K. Fobelets, R. P. Mertens and G. Borghs, "Capacitances in double barrier tunneling structures", *IEEE Trans. Elec. Devs.* ED-38, 2006-2012 (1991)
4. J. Genoe, C. Van Hoof, K. Fobelets, R. Mertens and G. Borghs, "pnp resonant tunneling light emitting transistor", *Appl. Phys. Lett.* 61, 1051-1053 (1992)
5. K. Fobelets, J. Genoe, R. Vounckx, R.P. Mertens, and G. Borghs, "Generation of four negative differential resistance regions using two resonant tunnelling diodes", *Microelectronic Engineering* 19, 887-890 (1992)
6. K. Fobelets, R. Vounckx, and G. Borghs, "Influence of the resistances on the characteristics of vertically integrated resonant tunnelling diodes", *Electron.Lett.*, 29(1), 57 (1993)
7. K. Fobelets, R. Vounckx, and G. Borghs, "Matrix formalism for the triple band effective mass equation", *Semiconductor Science and Technology* 8, 1815 (1993)
8. K. Fobelets, J. Genoe, R. Vounckx, and G. Borghs, "A proposal for a three bit ADC using three resonant tunneling diodes", *Semiconductor Science and Technology* 8, 2106 (1993)
9. K. Fobelets, H. Grönqvist, J. Genoe, R. Vounckx, L. Lundgren, and G. Borghs, "High frequency capacitances in resonant interband tunneling diodes", *Appl.Phys.Lett.* 64 (19), 2523 (1994).
10. K. Fobelets, R. Vounckx, and G. Borghs, "A GaAs pressure sensor based on resonant tunnelling diodes", *J.Micromech.Microeng.* 4 (3), 123 (1994).
11. K. Fobelets, G. Borghs, and J. Hegarty, "Experimental drain current drop back in GaAs MESFETs", *Electronics Lett.* 31 (23), 2042 (1995)
12. K. Fobelets, C. Van Hoof, J. Genoe, J. Stake, L. Lundgren, and G. Borghs, "High frequency capacitance of bipolar resonant tunnelling diodes", *J.Appl.Phys.* 79(2), 905 (1996)
13. J. Genoe, K. Fobelets, C. Van Hoof, and G. Borghs, "The in-plane dispersion relations of InAs/ AlSb/ GaSb/ AlSb/ InAs interband resonant tunneling diodes", *Phys. Rev. B* 52 (19), November 15, 1995, pp 14025-14034; *ibid*, *Phys. Rev. B* 53, May 15, 1996, pp 13194
14. K. Fobelets, B. Kelly, P. Horan, and J. Hegarty, "Controlled shift of the optical resonance of fully processed asymmetric Fabry-Perot modulator arrays", *Semiconductor Science and Technology* 11(4), 582 (1996)
15. K. Fobelets, and K. Thielemans, "Optical media with an imaginary third order nonlinearity analyzed by Hamiltonian systems", *Phys.Rev. A* 53, 4400 (1996)
16. T J Thornton, J M Fernandez, S Kaya, P W Green and K Fobelets, "Si:SiGe Quantum Wells grown on (118) Substrates: Surface Morphology and Transport Properties", *Appl. Phys. Letts.* 70 1278-1280 (1997)
17. S Kaya, T J Thornton, P W Green, K Fobelets and J M Fernandez, "Evidence for Inter-Miniband Scattering Due to Electron Heating in Si:SiGe Quantum Wells Grown on Tilted Substrates", *Phys. Stat. Sol(b)* 204, 227-229 (1997)
18. K. Fobelets, and G. Borghs, "Influence of the undoped spacer layer thickness on the DC characteristics of n-type GaAs/AIAs MESFETs", *Semicond.Sci.Technol.* 13, 318-321 (1998).
19. C. Gatzke, S.J. Webb, K. Fobelets, and R.A. Stradling, "In situ Raman spectroscopy of the selective etching of antimonides in GaSb/AlSb/InAs heterostructures", *Semicond.Sci.Technol.* 13, 399-403 (1998).
20. C. Gatzke, S.J. Webb, K. Fobelets, and R.A. Stradling, "In-situ monitoring of the selective etching of antimonides in GaSb/AlSb/InAs heterostructures using Raman spectroscopy", *Compound Semicon 1997 Inst.Phys.Conf.Series* (156) 337-340 (1998)
21. K. Fobelets, W. Jeamsaksiri, J. Hampson, C. Toumazou, and T.Thornton, "Si:SiGe MODFET current mirror", *Electron.Lett.* 34(22) 2076 (1998)
22. J C Yeoh, P W Green, T J Thornton, S Kaya, K Fobelets and J M Fernandez, "MOS gated Si:SiGe quantum wells by anodic oxidation", *Semicond.Sci.Technol.* 13, 1442 (1998)
23. C. Gatzke, K. Fobelets, A.C. Rowe, R.A. Stradling, and S.A. Solin, "Hot electron effects in InAs/AlSb/GaSb quantum wells," *Compound Semicon 1998 Inst.Phys.Conf.Series* (162) 349-354 (1999)
24. Papavassiliou C., Fobelets K., Toumazou C. "SiGe hetero-FET potential for micro-power applications" invited paper, *IEICE Trans. Electron*, E00-A(2000)
25. W.Jeamsaksiri, J.E. Verlazquez-Perez, K. Fobelets, "Optimised n-channel Si/SiGe HFETs design for V_{TH} shift immunity", *Solid State Electronics* 46 (12): 2241-2245 DEC 2002
26. R.S. Ferguson, K. Fobelets, L.F. Cohen, and M. Pawlik, "A new bevelling technique for low surface roughness base on CMP", *IEE Electron. Lett.* 38 (17), 998 (2002)



27. S.H. Olsen, A.G. O'Neill, D.J. Norris, A.G. Cullis, N.J. Woods, J. Zhang, K. Fobelets, and H.A. Kemhadjian, "Strained Si/SiGe n-channel MOSFETs: impact of cross-hatching on device performance", *Semiconductor Sci. Technol.* 17(7), 655 (2002)
28. S.M. Li, and K. Fobelets, "Si/SiGe n-channel Modulation Doped Field Effect Transistor on air", *IEE Electron. Lett.* 38 (18), 1064 (2002)
29. R.S. Ferguson, K. Fobelets, and L. Cohen, "Kelvin probe force microscopy of bevelled semiconductors", *J Vac Sci Technol B* 20 (5), pp 2133-2136 (2002)
30. K. Fobelets, W. Jeamsaksiri, J. Hampson, C. Toumazou, "Simulations of Si:SiGe MODFET analogue applications" *International Journal of Electronics*, 89(8), pp593-602 (2002)
31. R.S. Ferguson, K. Fobelets, and L. Cohen, "Kelvin probe force microscopy of bevelled semiconductors", *Virtual Journal of Nanoscale Science & Technology*, December 23 (2002) at <http://www.vjnano.org>.
32. R.S. Ferguson, K. Fobelets, M. M. Ahmad, D.J. Norris, A.G. Cullis, J. Zhang and L. F. Cohen, "Determining the composition of SiGe heterostructures using an optical microscope" *Semiconductor Science and Technology* 18(4), pp390-392 (2003)
33. A. Vilches, K. Fobelets, K. Michelakis, S. Despotopoulos, C. Papavassiliou, T. Hackbarth, and U. König, "A Novel Monolithic Micropower Amplifier Using a SiGe n-MODFET Device", *IEE Electronics Letters*, 39 (12): 884-886 JUN 12 2003
34. S.H. Olsen, A.G. O'Neill, D.J. Norris, A.G. Cullis, K. Fobelets, H.A. Kemhadjian, "Impact of virtual substrate quality on performance enhancements in strained Si/SiGe heterojunction n-channel MOSFETs", *Solid-State Electronics*, 47 (8): 1289-1295 AUG 2003
35. V. Gaspari, K. Fobelets, J.E. Velazquez-Perez, R. Ferguson, K. Michelakis, S. Despotopoulos, and C. Papavassiliou, "Effect of temperature on the transfer characteristic of a 0.5µm-gate Si:SiGe depletion-mode n-MODFET", *Appl. Surface Sci.* 224(1-4), 15 March 2004, Pages 390-393
36. K. Michelakis, S. Despotopoulos, V. Gaspari, A. Vilches, K. Fobelets, C. Papavassiliou, and C. Toumazou, "SiGe virtual substrate HMOS transistor for analogue applications", *Appl. Surface Sci.* 224(1-4), 15 March 2004, Pages 386-389
37. K. Fobelets, T.L. Tan, K. Thielemans, M.M. Ahmad, R.S. Ferguson, and J. Zhang, "Colour coding Ge concentrations in Si_{1-x}Ge_x by bevelling and oxidation: CABOOM", *Semiconductor Science and Technology* 19(3) p 510-515 (March 2004)
38. J.E. Velazquez, K. Fobelets, and V. Gaspari, "Study of current fluctuations in deep-submicron Si/SiGe n-channel MOSFET: impact of relevant technological parameters on the thermal noise performance", *Semicond. Sci. Technol.* 19 S191-S194 (2004)
39. V. Gaspari, K. Fobelets, P. W. Ding, S. H. Olsen, A. G. O'Neill, and J. Zhang, "Temperature dependence of sub-micron strained-Si surface channel n-type MOSFETs in dynamic-threshold mode", *IEEE Electron Dev. Lett.* 25(5), 334 (2004)
40. A. Vilches, R. Loga, K. Michelakis, K. Fobelets, C. Papavasiliou, D. Haigh, "Analogue Micropower FET Techniques Review" *Semicon. Sci. & Technol.* 19 (7) R19-R34 (2004).
41. A. Vilches, K. Michelakis, K. Fobelets, C. Papavassiliou, T. Hackbarth and U. König, "Buried-channel SiGe HMODFET device potential for micropower applications" *Solid State Electronics* 48 (8): 1423-1431 (2004)
42. K. Fobelets, W. Jeamsaksiri, C. Papavasiliou, A. Vilches, V. Gaspari, J.E. Velazquez-Perez, K. Michelakis, T. Hackbarth, and U. König, "Comparison of sub-micron Si:SiGe heterojunction nFETs to Si nMOSFET in present-day technologies", *Solid State Electronics* 48 (8): 1401-1406 (2004)
43. K. Michelakis, A. Vilches, C. Papavassiliou, S. Despotopoulos, K. Fobelets and C. Toumazou, "Average drift mobility and apparent sheet electron density profiles in strained-Si/SiGe buried-channel depletion-mode n-MOSFETs", *IEEE Transactions on Electron Devices* 51(8), pp. 1309-1314 (2004)
44. A. Vilches, K. Fobelets, K. Michelakis, S. Despotopoulos, C. Papavasiliou, T. Hackbarth, and U. König, "SiGe HMODFET 'KAIST' Micropower Model and Amplifier Realisation", *IEEE Transactions on Circuits and Systems I: Regular Papers* 51(6), p1100-1105 (2004)
45. V. Gaspari, K. Fobelets, J. E. Velazquez-Perez, M. J. Prest, and T. E. Whall, "Dynamic threshold mode operation of p-channel Si and strained-SiGe MOSFETs between 10 K and 300 K", *Semiconductor Science and Technology* 19(9) L95-L98, (2004)
46. A. Vilches, R. Loga, M. Rahal, K. Fobelets, C. Papavassiliou, and T. J. Hall, "**Monolithic Large-Signal** Transimpedance Amplifier for use in Multi-Gigabit, Short-Range Optoelectronic Interconnect Applications", *IEEE T Circuits-II* 52 (2): 102-106 (2005).
47. K. Michelakis, S. Despotopoulos, C. Papavassiliou, A. Vilches, K. Fobelets, C. Toumazou, "SiGeHMOSFET monolithic inverting current mirror", *Solid-State Electron.* 49 (4): 591-594 (2005)



48. V. Gaspari, K. Fobelets, J.E. Velazquez-Perez, and T. Hackbarth, "DC performance of deep submicrometer Schottky-gated n-channel Si:SiGe heterostructure field effect transistors at low temperatures", *IEEE Trans Electron Dev* 52(9):2067 – 2074 (2005)
49. K. Fobelets, V. Gaspari, and P.W. Ding, "Sub-threshold Operation of a monolithically integrated Strained-Si Current Mirror at low Temperatures", *IEEE Transactions on circuits and systems II* 53(11): 1215-1219 (2006)
50. K. Fobelets, P.W. Ding, and J.E. Velazquez-Perez, "A novel 3D embedded gate field effect transistor: Device concept and modelling", *Solid State Electronics* 51(5), p749-756 (2007)
51. S. L. Romyantsev, K. Fobelets, T. Hackbarth, M. S. Shur, "Low frequency noise in insulated-gate strained-Si n-channel modulation doped field effect transistors", *Jap. J. Appl. Phys.* 46(7A), pp. 4011-4015 (2007).
52. K. Fobelets, J.E. Velazquez-Perez and T. Hackbarth, "Study of MOS-gated strained-Si buried channel Field Effect Transistors," *IETE J. of Research, Special Issue on Heterostructure Silicon* 53(3), p253-262 (2007)
53. K. Fobelets, and J.E. Velazquez-Perez, "Rectification in unipolar nanowires", *Physica E: Low-Dimensional Systems and Nanostructures*, 40(7) 2481-2484 (2008)
54. K. Fobelets, S.L. Romyantsev, S. Olsen, and M.S. Shur, "Low frequency noise in strained-Si surface channel MOSFET as a function of Ge concentration", *J. Appl. Phys.* 103(4) 044501 (2008)
55. Y. Shadrokh, K. Fobelets, and J.E. Velázquez-Pérez, "Two Device Screen Grid Field Effect Transistor Logic", *Romanian Journal of Information Science and Technology* 11(1) 37-48 (2008)
56. Y. Shadrokh, K. Fobelets, and J.E. Velázquez-Pérez, "Comparison of the multi-gate functionality of Screen-Grid Field Effect Transistors with finFETs", *Semicond. Sci. Technol.* 23(9) 095006 (9pp) (2008)
57. S.L. Romyantsev, K. Fobelets, D. Veksler, T. Hackbarth, and M.S. Shur, "Strained Si modulation doped field effect transistors as detectors of terahertz and sub-terahertz radiation", *Semicond. Sci. Technol.* 23(10) 105001 (4pp) (2008)
58. K. Fobelets, P.W. Ding, Y. Shadrokh and J.E. Velazquez-Perez, "Analog and digital performance of the Screen-Grid Field Effect Transistor (SGrFET)", *International Journal of High Speed Electronics and Systems (IJHSES)* 18(4), Chapter 1 (2008) – best invited paper award
59. K. Fobelets, and J.E. Velazquez-Perez, "Noise in strained Si MOSFETs for low-power applications", *J. Statistical Mechanics – Theory and Experiment*, P01045 (2009).
60. K. Fobelets, S. L. Romyantsev, T. Hackbarth, and M. S. Shur, "Trap density in Schottky-gated n-channel strained-Si/SiGe modulation doped field effect transistors", *Solid State Electronics* 53(6), p. 626-629 (2009).
61. M. Zaremba-Tymieniecki, C. Li, K. Fobelets, and Z. A. K. Durrani, "Field-effect transistors using silicon nanowires prepared by electroless chemical etching", *IEEE Electron Devices Letters*, 31(8), 860 (2010).
62. Y. M. Meziani, E. Garcia, E. Velazquez, E. Diez, A. Elmoutacouakil, T. Otsuji, and K. Fobelets, "Strained Silicon Modulation Field Effect Transistor as a new Sensor of terahertz radiation", *Semicond. Sci. Technol.* 26 (2011) 105006 (4pp).
63. C. Li, C. B., K. Fobelets, M.S. Tymieniecki, M. Hamayun, Z.A.K. Durrani, M. Green, "Bunch-free Electroless-etched Si Nanowire Array", *ECS Transactions* 33(38), 9-13 (2011)
64. K. Fobelets, J. Calvo-Gallego, and J. E. Velázquez-Pérez, "Effect of the gate scaling on the analog performance of s-Si CMOS devices", *Semiconductor Science and Technology* 26(9), 095030 (2011).
65. C. Li, K. Fobelets, S.N.S. Jalal, W.A. Ng, Z.A.K. Durrani, "Influence of chemical modification on the electrical properties of Si nanowire arrays", *Advanced Materials Research* 160-162, 1331-1335 (2011).
66. Grigelionis, T., Fobelets K., Vincent, B., Mitard, J., De Jaeger, B., Simoen, E., Hoffman, T. Y., Yavorskiy, D., Lusakowski, J., "Mobility of Holes in Nanometer Ge-on-Si p-Type Metal-Oxide-Semiconductor Field-Effect Transistors at Low Temperatures", *Acta Physica Polonica A*, 120(5), 933-935 (2011).
67. K. Fobelets, Z.A.K. Durrani, P.W. Ding, and N. Mohseni Kiasari, "Electrical transport in polymer- covered Silicon Nanowires", *IEEE Transactions on nanotechnology* 11(4), 661 - 665 (2012) (1.864)
68. C. B. Li, K.Fobelets and Z.A.K Durrani, "Study of Two-Step Electroless Etched Si Nanowire arrays", *Applied Mechanics and Materials*, 110-116, 3284 (2012).
69. B. Xu, C. Li, K. Thielemans, M. Myronov, and K. Fobelets, "Thermoelectric performance of Si_{0.8}Ge_{0.2} nanowire arrays", *IEEE Transactions on Electron Devices*, 59(12), pp 3193 – 3198 (2012).
70. C. Li, E. Krali, K. Fobelets, B. Cheng, and Q. Wang, "Conductance modulation of Si nanowire arrays", *Appl. Phys. Lett.* 101(22), 222101 (2012).
71. K. Fobelets, C.B. Li, D. Coquillat, P. Arcade, and F. Teppe, "Fourier Transform Spectroscopy of metal-assisted electroless etched silicon nanowire arrays", *RSC Adv.*, 3, 4434-4439 (2013)
72. B. Xu, C. Li, M. Myronov, and K. Fobelets, "n-Si – p-Si_{1-x}Ge_x nanowire arrays for thermoelectric power generation", *Solid-State Electronics*, 83, pp 107–112 (2013).
73. Y.M. Meziani, E. Garcia-Garcia, J.E. Velazquez-Perez, D. Coquillat, N. Dyakonova, W. Knap, I. Grigelionis, and K. Fobelets, ""Terahertz Imaging Using Strained-Si MODFETs as Sensors", *Solid-State Electronics*, 83, pp 113–117 (2013).



74. C. Li, K. Fobelets, C. Liu, C. Xue, B. Cheng and Q. Wang, “Ag-assisted lateral etching of Si nanowires and its application to nanowire transfer”, *Applied Physics Letters*, 103(18), 183102 28 (4p) (2013).
75. C. Li, C. Zhang, K. Fobelets, J. Zheng, C. Xue, Y. Zuo, B. Cheng, and Q. Wang, “Impact of ammonia on the electrical properties of p-type Si nanowire arrays”, *Journal of Applied Physics* 114(17), 173702 07 (2013).
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