

Sampo Tuukkanen  
Associate Professor (tenure track)  
BioMediTech  
**Visiting address:**  
SC204b  
**Email:** sampo.tuukkanen@tuni.fi  
**Phone:** +358405415276



## Research output

- 1. Chemical modification strategies for viscosity-dependent processing of gellan gum**  
Gering, C., Rasheed, A., Koivisto, J., Parraga Meneses, J., Tuukkanen, S. & Kellomäki, M., Oct 2021, In: *Carbohydrate Polymers*. 269, 118335.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 2. Characterization of a novel bacterial cellulose producer for the production of eco-friendly piezoelectric-responsive films from a minimal medium containing waste carbon**  
Mangayil, R., Rissanen, A. J., Pammo, A., Guizelini, D., Losoi, P., Sarlin, E., Tuukkanen, S. & Santala, V., 2021, In: *Cellulose*. 28, 2, p. 671–689 19 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 3. Extrusion-Based Bioprinting of Multilayered Nanocellulose Constructs for Cell Cultivation Using In Situ Freezing and Preprint CaCl<sub>2</sub> Cross-Linking**  
Rasheed, A., Azizi, L., Turkki, P., Janka, M., Hytönen, V. P. & Tuukkanen, S., 30 Dec 2020, (E-pub ahead of print) In: *ACS Omega*.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 4. Direct measurement of contraction force in cardiac tissue construct in 2D- plane using dual axis cantilever sensor**  
Virtanen, J., Koivisto, M., Toimela, T., Vehkaoja, A., Heinonen, T. & Tuukkanen, S., Sep 2020, (E-pub ahead of print) In: *IEEE Sensors Journal*.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 5. Additive manufacturing of monolithic supercapacitors with biopolymer separator**  
Arvani, M., Keskinen, J., Railanmaa, A., Siljander, S., Björkqvist, T., Tuukkanen, S. & Lupo, D., 1 Jun 2020, In: *Journal of Applied Electrochemistry*. 50, 6, p. 689-697 9 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 6. Piezoelectric dual axis cantilever force measurement probe**  
Virtanen, J., Pammo, A., Vehkaoja, A. & Tuukkanen, S., 15 Feb 2020, In: *IEEE Sensors Journal*. 20, 4, 7 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 7. Enhancing piezoelectric properties of bacterial cellulose films by incorporation of MnFe<sub>2</sub>O<sub>4</sub> nanoparticles**  
Sriplai, N., Mangayil, R., Pammo, A., Santala, V., Tuukkanen, S. & Pinitsoontorn, S., 2020, In: *Carbohydrate Polymers*. 231, 8 p., 115730.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 8. Modulating sustained drug release from nanocellulose hydrogel by adjusting the inner geometry of implantable capsules**  
Auvinen, V. V., Virtanen, J., Merivaara, A., Virtanen, V., Laurén, P., Tuukkanen, S. & Laaksonen, T., 2020, In: *JOURNAL OF DRUG DELIVERY SCIENCE AND TECHNOLOGY*. 57, 6 p., 101625.  
Research output: Contribution to journal › Article › Scientific › peer-review
- 9. Piezoelectric properties of roll-to-roll fabricated polylactic acid films**  
Tuukkanen, S., Toriseva, J., Pammo, A., Virtanen, J. & Lahti, J., 2020, *Proceedings - 2020 IEEE 8th Electronics System-Integration Technology Conference, ESTC 2020*. IEEE, 9229788  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
- 10. Nanocellulose films as substrates for printed electronics**  
Pammo, A., Christophliemk, H., Keskinen, J., Björkqvist, T., Siljander, S., Mäntysalo, M. & Tuukkanen, S., 15 Oct 2019, *Proceedings MARSS 2019- International Conference on Manipulation Automation and Robotics at Small Scales: July 1-5, 2019 Helsinki*. Haliyo, S., Sill, A., Zhou, Q., Kallio, P. & Fatikow, S. (eds.). IEEE, p. 1-5 5 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
- 11. Disposable Microfluidic Sensor Based on Nanocellulose for Glucose Detection**  
Uddin, K. M. A., Jokinen, V., Jahangiri, F., Franssila, S., Rojas, O. J. & Tuukkanen, S., Feb 2019, In: *Global Challenges*. 3, 2, 6 p.  
Research output: Contribution to journal › Article › Scientific › peer-review

12. **Conductive cellulose based foam formed 3D shapes—from innovation to designed prototype**  
Siljander, S., Keinänen, P., Ivanova, A., Lehmonen, J., Tuukkanen, S., Kanerva, M. & Björkqvist, T., 31 Jan 2019, In: *Materials*. 12, 3, 12 p., 430.  
Research output: Contribution to journal › Article › Scientific › peer-review
13. **Direct Measurement of Contraction Force in Human Cardiac Tissue Model Using Piezoelectric Cantilever Sensor Technique**  
Virtanen, J., Toivanen, M., Toimela, T., Heinonen, T. & Tuukkanen, S., 2019, In: *Current Applied Physics*. 20, 1, p. 155-160 6 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
14. **Evaluation of printed P(VDF-TrFE) pressure sensor signal quality in arterial pulse wave measurement**  
Laurila, M-M., Peltokangas, M., Lozano Montero, K., Siponkoski, T., Juuti, J., Tuukkanen, S., Oksala, N., Vehkaoja, A. & Mäntysalo, M., 2019, In: *IEEE Sensors Journal*. 19, 23, p. 11072-11080  
Research output: Contribution to journal › Article › Scientific › peer-review
15. **Motion energy harvesting and storage system including printed piezoelectric film and supercapacitor**  
Rokaya, C., Schaeffner, P., Tuukkanen, S., Keskinen, J. & Lupo, D., 2019, *2019 IEEE International Flexible Electronics Technology Conference (IFETC)*. IEEE, 8 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
16. **Piezoelectric cantilever force sensor sensitivity measurements**  
Virtanen, J., Sariola, V. & Tuukkanen, S., 3 Sep 2018, *XXII World Congress of the International Measurement Confederation (IMEKO 2018): 3–6 September 2018, Belfast, United Kingdom*. IOP Press, p. 1-4 4 p. (Journal of Physics: Conference Series; vol. 1065).  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
17. **Lateral strain force sensitivity measurements for piezoelectric polyvinylidene fluoride sensor array**  
Tuukkanen, S. & Sariola, V., Sep 2018, *2018 7th Electronic System-Integration Technology Conference (ESTC)*. IEEE, 4 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
18. **High Bending-Mode Sensitivity of Printed Piezoelectric Poly(vinylidene fluoride-co-trifluoroethylene) Sensors**  
Rajala, S., Schouten, M., Krijnen, G. & Tuukkanen, S., 23 Jul 2018, In: *ACS Omega*. 3, 7, p. 8067-8073 7 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
19. **Effect of surfactant type and sonication energy on the electrical conductivity properties of nanocellulose-CNT nanocomposite films**  
Siljander, S., Keinänen, P., Rätty, A., Ramakrishnan, K. R., Tuukkanen, S., Kunnari, V., Harlin, A., Vuorinen, J. & Kanerva, M., 20 Jun 2018, In: *International Journal of Molecular Sciences*. 19, 6, 1819.  
Research output: Contribution to journal › Article › Scientific › peer-review
20. **Evaluation of dry electrodes in canine heart rate monitoring**  
Virtanen, J., Somppi, S., Törnqvist, H., Jeyhani, V., Fiedler, P., Gizatdinova, Y., Majaranta, P., Väättäjä, H., Cardó, A. V., Lekkala, J., Tuukkanen, S., Surakka, V., Vainio, O., Vehkaoja, A. & Kuosmanen, Y., 2018, In: *Sensors*. 18, 6, 1757.  
Research output: Contribution to journal › Article › Scientific › peer-review
21. **Nanocellulose and chitosan based films as low cost, green piezoelectric materials**  
Hänninen, A., Sarlin, E., Lyyra, I., Salpavaara, T., Kellomäki, M. & Tuukkanen, S., 2018, In: *Carbohydrate Polymers*. 202, p. 418-424 7 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
22. **Electropolymerized polyazulene as active material in flexible supercapacitors**  
Suominen, M., Lehtimäki, S., Yewale, R., Damlin, P., Tuukkanen, S. & Kvarnström, C., 15 Jul 2017, In: *Journal of Power Sources*. 356, p. 181-190 10 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
23. **Fabrication and characterization of nanocellulose aerogel structures**  
Virtanen, J., Janka, M. & Tuukkanen, S., 13 Jun 2017, *EMBEC & NBC 2017: Joint Conference of the European Medical and Biological Engineering Conference (EMBEC) and the Nordic-Baltic Conference on Biomedical Engineering and Medical Physics (NBC), Tampere, Finland, June 2017*. Springer, p. 1029-1032 4 p. (IFBME Proceedings; vol. 65).  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
24. **Performance, stability and operation voltage optimization of screen-printed aqueous supercapacitors**  
Lehtimäki, S., Railanmaa, A., Keskinen, J., Kujala, M., Tuukkanen, S. & Lupo, D., 6 Apr 2017, In: *Scientific Reports*. 7, 46001.  
Research output: Contribution to journal › Article › Scientific › peer-review

25. **Engineering and Characterization of Bacterial Nanocellulose Films as Low Cost and Flexible Sensor Material**  
Mangayil, R., Rajala, S., Pammo, A., Sarlin, E., Luo, J., Santala, V., Karp, M. & Tuukkanen, S., 2017, In: ACS Applied Materials & Interfaces. 9, 22, p. 19048–19056 9 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
26. **Pyrolysed cellulose nanofibrils and dandelion pappus in supercapacitor application**  
Virtanen, J., Pammo, A., Keskinen, J., Sarlin, E. & Tuukkanen, S., 2017, In: Cellulose. 24, 8, p. 3387–3397 11 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
27. **Architectural Modifications for Flexible Supercapacitor Performance Optimization**  
Keskinen, J., Lehtimäki, S., Dastpak, A., Tuukkanen, S., Flyktman, T., Kraft, T., Railanmaa, A. & Lupo, D., Nov 2016, In: Electronic Materials Letters. 12, 6, p. 795–803 9 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
28. **Testing and comparing of film-type sensor materials in measurement of plantar pressure distribution**  
Rajala, S., Salpavaara, T. & Tuukkanen, S., 18 Oct 2016, *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. p. 1-4 4 p. (2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)).  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
29. **Challenges and capabilities of conductive polymeric materials for electromechanical stimulation of stem cells: A case study**  
Viehrig, M., Tuukkanen, S. & Kallio, P., 6 Sep 2016, *2016 International Conference on Manipulation, Automation and Robotics at Small Scales, MARSS 2016*. Institute of Electrical and Electronics Engineers Inc., 5 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
30. **Piezoelectric sensitivity of a layered film of chitosan and cellulose nanocrystals**  
Hänninen, A., Rajala, S., Salpavaara, T., Kellomäki, M. & Tuukkanen, S., 4 Sep 2016, *30th Eurosensors Conference, EUROSENSORS 2016*. Elsevier, p. 1176-1179 4 p. (Procedia Engineering; vol. 168).  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
31. **Cellulose nanofibril film as a piezoelectric sensor material**  
Rajala, S., Siponkoski, T., Sarlin, E., Mettänen, M., Vuoriluoto, M., Pammo, A., Juuti, J., Rojas, O. J., Franssila, S. & Tuukkanen, S., 22 Jun 2016, In: ACS Applied Materials & Interfaces. 8, 24, p. 15607–15614 8 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
32. **Fully printed memristors for a self-sustainable recorder of mechanical energy**  
Vilmi, P., Nelo, M., Voutilainen, J-V., Palosaari, J., Pöyhönen, J., Tuukkanen, S., Jantunen, H., Juuti, J. & Fabritius, T., 19 Apr 2016, In: Flexible and Printed Electronics. 1, 2, 8 p., 025002.  
Research output: Contribution to journal › Article › Scientific › peer-review
33. **Structural and Electrical Characterization of Solution-Processed Electrodes for Piezoelectric Polymer Film Sensors**  
Rajala, S., Mettänen, M. & Tuukkanen, S., 15 Mar 2016, In: IEEE Sensors Journal. 16, 6, p. 1692-1699 8 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
34. **Behaviour of one-step spray-coated carbon nanotube supercapacitor in ambient light harvester circuit with printed organic solar cell and electrochromic display**  
Tuukkanen, S., Välimäki, M., Lehtimäki, S., Vuorinen, T. & Lupo, D., 9 Mar 2016, In: Scientific Reports. 6, 22967.  
Research output: Contribution to journal › Article › Scientific › peer-review
35. **A survey of printable piezoelectric sensors**  
Tuukkanen, S. & Rajala, S., 27 Oct 2015, *IEEE Sensors 2015 Conference Proceedings*. IEEE, p. 1426-1429 4 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
36. **One-step large-scale deposition of salt-free DNA origami nanostructures**  
Linko, V., Shen, B., Tapio, K., Toppari, J. J., Kostianen, M. A. & Tuukkanen, S., 23 Oct 2015, In: Scientific Reports. 5, 8 p., 15634.  
Research output: Contribution to journal › Article › Scientific › peer-review
37. **Preparation of Supercapacitors on Flexible Substrates with Electrodeposited PEDOT/Graphene Composites**  
Lehtimäki, S., Suominen, M., Damlin, P., Tuukkanen, S., Kvarnström, C. & Lupo, D., 14 Oct 2015, In: ACS Applied Materials and Interfaces. 7, 40, p. 22137-22147 11 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
38. **Measuring optical anisotropy in poly(3,4-ethylene dioxothiophene): poly(styrene sulfonate) films with added graphene**  
Isoniemi, T., Tuukkanen, S., Cameron, D. C., Simonen, J. & Toppari, J. J., 9 Jul 2015, In: Organic Electronics. 25, p. 317-323 7 p.  
Research output: Contribution to journal › Article › Scientific › peer-review

39. **Characteristics of Piezoelectric Polymer Film Sensors With Solution-Processable Graphene-Based Electrode Materials**  
Rajala, S., Tuukkanen, S. & Halttunen, J., Jun 2015, In: IEEE Sensors Journal. 15, 6, p. 3102-3109 8 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
40. **Piezoelectric sensitivity measurements of cellulose nanofibril sensors**  
Rajala, S., Vuoriluoto, M., Rojas, O., Franssila, S. & Tuukkanen, S., 2015, *IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic*. Holub, J. (ed.). 5 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
41. **Pigment-Cellulose Nanofibril Composite and Its Application as a Separator-Substrate in Printed Supercapacitors**  
Torvinen, K., Lehtimäki, S., Keränen, J. T., Sievänen, J., Vartiainen, J., Hellén, E., Lupo, D. & Tuukkanen, S., 2015, In: *Electronic Materials Letters*. 11, 6, p. 1040-1047 8 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
42. **Low-cost, solution processable carbon nanotube supercapacitors and their characterization**  
Lehtimäki, S., Tuukkanen, S., Pörhönen, J., Moilanen, P., Virtanen, J., Honkanen, M. & Lupo, D., Nov 2014, In: *Applied Physics A-Materials Science and Processing*. 117, 3, p. 1329-1334 6 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
43. **Printable, Transparent, and Flexible Touch Panels Working in Sunlight and Moist Environments**  
Vuorinen, T., Zakrzewski, M., Rajala, S., Lupo, D., Vanhala, J., Palovuori, K. & Tuukkanen, S., 29 Oct 2014, In: *Advanced Functional Materials*. 24, 40, p. 6340-6347 8 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
44. **Flexible Piezoelectric Energy Harvesting Circuit With Printable Supercapacitor and Diodes**  
Pörhönen, J., Rajala, S., Lehtimäki, S. & Tuukkanen, S., Sep 2014, In: *IEEE Transactions on Electron Devices*. 61, 9, p. 3303-3308 6 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
45. **Performance of printable supercapacitors in an RF energy harvesting circuit**  
Lehtimäki, S., Li, M., Salomaa, J., Pörhönen, J., Kalanti, A., Tuukkanen, S., Heljo, P., Halonen, K. & Lupo, D., Jun 2014, In: *International Journal of Electrical Power and Energy Systems*. 58, p. 42-46 5 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
46. **Stretching of solution processed carbon nanotube and graphene nanocomposite films on rubber substrates**  
Tuukkanen, S., Hoikka, M., Poikelispää, M., Honkanen, M., Vuorinen, T., Kakkonen, M., Vuorinen, J. & Lupo, D., May 2014, In: *Synthetic Metals*. 191, p. 28-35 8 p.  
Research output: Contribution to journal › Article › Scientific › peer-review
47. **Use of microcutting for high throughput electrode patterning on a flexible substrate**  
Janka, M., Tuukkanen, S., Tuorila, H., Viheriälä, J., Honkanen, M., Stingelin, N. & Lupo, D., Jan 2014, In: *Journal of Micromechanics and Microengineering*. 24, 1, 7 p., 015015.  
Research output: Contribution to journal › Article › Scientific › peer-review
48. **Fabrication and characterization of solution-processed carbon nanotube supercapacitors**  
Lehtimäki, S., Pörhönen, J., Tuukkanen, S., Moilanen, P., Virtanen, J. & Lupo, D., 2014, *2013 MRS Fall Meeting - Symposium SS/XX - Micro- and Nanoscale Systems - Novel Materials, Structures and Devices*.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
49. **Modelling of Joule heating based self-alignment method for metal grid line passivation**  
Janka, M., Raunonen, P., Tuukkanen, S. & Lupo, D., 2014, *2013 MRS Fall Meeting - Symposium M - Large-Area Processing and Patterning for Active Optical and Electronic Devices*. 6 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
50. **Printable and disposable supercapacitor from nanocellulose and carbon nanotubes**  
Tuukkanen, S., Lehtimäki, S., Jahangir, F., Eskelinen, A-P., Lupo, D. & Franssila, S., 2014, *ESTC 2014, 5th Electronics System-Integration Technology Conference, September 16 – 18, 2014, Helsinki, Finland*. p. 1-6 6 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
51. **Spray coating of self-aligning passivation layer for metal grid lines**  
Vuorinen, T., Janka, M., Rubingh, J. E., Tuukkanen, S., Groen, P. & Lupo, D., 2014, *2014 Electronics System-Integration Technology Conference (ESTC), 16-18 September 2014, Helsinki, Finland*. p. 1-3 3 p.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review
52. **Low-Temperature Solution Processable Electrodes for Piezoelectric Sensors Applications**  
Tuukkanen, S., Julin, T., Rantanen, V., Zakrzewski, M., Moilanen, P. & Lupo, D., 2013, In: *Japanese Journal of Applied Physics*. 52, 5, p. 1-4 4 p., 05DA06.  
Research output: Contribution to journal › Article › Scientific › peer-review

53. **Printed diodes: physics and applications**  
Lupo, D., Lilja, K., Heljo, P., Tuukkanen, S. & Li, M., 2012, *Proceedings of 5th International Symposium Technologies for Polymer Electronics (TPE 12)*. p. 42-47  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review
54. **Solution-processible electrode materials for a heat-sensitive piezoelectric thin-film sensor**  
Tuukkanen, S., Julin, T., Rantanen, V., Zakrzewski, M., Moilanen, P., Lilja, K. E. & Rajala, S., 2012, In: *Synthetic Metals*. 162, 21-22, p. 1987-1995  
Research output: Contribution to journal > Article > Scientific > peer-review
55. **Charge Pump Circuit Using Printed Organic Diodes and Capacitors**  
Heljo, P., Lilja, K. E., Tuukkanen, S. & Lupo, D., 2011, *LOPE-C; Large-area, Organic & Printed Electronics Convention, June 28-30, 2011, Frankfurt, Germany*. Frankfurt: Electronics Association, p. 53-55 (Large-area, Organic & Printed Electronics Convention LOPE-C).  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review
56. **Effect of dielectric barrier on rectification, injection and transport properties of printed organic diodes**  
Lilja, K. E., Majumdar, H. S., Lahtonen, K., Heljo, P., Tuukkanen, S., Joutsenoja, T., Valden, M., Österbacka, R. & Lupo, D., 2011, In: *Journal of Physics D: Applied Physics*. 44, p. 1-6 6 p., 294301.  
Research output: Contribution to journal > Article > Scientific > peer-review
57. **Printed organic rectifying diodes: Issues, interfaces and applications**  
Lupo, D., Lilja, K., Heljo, P. & Tuukkanen, S., 2011, *Proceedings of American Association of Textile Chemists and Colorists International Conference 2011 (AATCC 2011)*. Curran Associates  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review
58. **Self-alignment method for solution-processable dielectric structures via joule heating**  
Janka, M., Tuukkanen, S., Joutsenoja, T. & Lupo, D., 2011, In: *Thin Solid Films*. 519, 19, p. 6587-6590  
Research output: Contribution to journal > Article > Scientific > peer-review
59. **Testing the effects of temperature cycling on tantalum capacitors**  
Virkki, J. & Tuukkanen, S., 2010, In: *Microelectronics Reliability*. 50, 8, p. 1121-1124  
Research output: Contribution to journal > Article > Scientific > peer-review
60. **Usability of HTSL and LTSL tests at component level**  
Virkki, J. & Tuukkanen, S., 2010, *The Seventh International New Exploratory Technologies Conference NEXT 2010, October 19-21, 2010, University of Turku, Finland*. p. 1-12 12 p.  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review
61. **Direct conductance measurements of short single DNA molecules in dry conditions**  
Dulic, D., Tuukkanen, S., Chung, C. L., Isambert, A., Lavie, P. & Filoramo, A., 2009, In: *Nanotechnology*. 20, 11, 115502  
Research output: Contribution to journal > Article > Scientific > peer-review
62. **Toward full carbon interconnects: High conductivity of individual carbon nanotube to carbon nanotube regrowth junctions**  
Tuukkanen, S., Streiff, S., Chenevier, P., Pinault, M., Jeong, H. J., Enouz-Vedrenne, S., Cojocaru, C. S., Pribat, D. & Bourgoin, J. P., 2009, In: *Applied Physics Letters*. 95, 11, 113108  
Research output: Contribution to journal > Article > Scientific > peer-review
63. **Trapping of 27 bp-8 kbp DNA and immobilization of thiol-modified DNA using dielectrophoresis**  
Tuukkanen, S., Kuzyk, A., Toppari, J. J., Häkkinen, H., Hytönen, V. P., Niskanen, E., Rinkiö, M. & Törmä, P., 2007, In: *Nanotechnology*. 18, 295204, p. 10 p  
Research output: Contribution to journal > Article > Scientific > peer-review
64. **Carbon nanotubes as electrodes for dielectrophoresis of DNA**  
Tuukkanen, S., Toppari, J. J., Kuzyk, A., Hirviniemi, L., Hytönen, V. P., Ihalainen, T. & Törmä, P., 2006, In: *Nano Letters*. 6, 7, p. 1339-1343  
Research output: Contribution to journal > Article > Scientific > peer-review
65. **Dielectrophoresis as a tool for nanoscale DNA manipulation**  
Tuukkanen, S., Toppari, J. J., Hytönen, V. P., Kuzyk, A., Kulomaa, M. S. & Törmä, P., 2005, In: *International Journal of Nanotechnology*. 2, 3, p. 280-291  
Research output: Contribution to journal > Article > Scientific > peer-review
66. **Dielectrophoresis of nanoscale double-stranded DNA and humidity effects on its electrical conductivity**  
Tuukkanen, S., Kuzyk, A., Toppari, J. J., Hytönen, V. P., Ihalainen, T. & Törmä, P., 2005, In: *Applied Physics Letters*. 87, 18, 183102  
Research output: Contribution to journal > Article > Scientific > peer-review

67. **Fabrication of DNA monolayers on gold substrates and guiding of DNA with electric field**

Tuukkanen, S., Virtanen, J., Hytonen, V. P., Kulomaa, M. S. & Torma, P., Dec 2003, In: *Reviews on Advanced Materials Science*. 5, 3, p. 228-231 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

## Thesis supervision, examination and instruction at other universities

**Jani Jylhä**, 2014. Bachelor thesis, Aalto University, *Mechanical properties of Graphene*.

**Ilmari Harilainen**, 2014. Bachelor thesis, Aalto University, *Self-healing materials*.

**Mostafa Aseem**, 2014. Bachelor thesis, Aalto University, *Flexible displays and photo-detectors*.

**Jean-Charles Fontanier**, 2012. Bachelor's thesis (exchange student at TUT from Polytech' Montpellier, France), Tampere University of Technology, *Printability and wettability of conductive inks for supercapacitor*.

**Petri Heljo**, 2010. Master's Thesis, Tampere University of Technology, *High frequency characterization of printed organic diodes*.  
**Jani Jylhä**, 2014. Bachelor thesis, Aalto University, *Mechanical properties of Graphene*.

**Harri Niiranen**, 2004. Bachelor's thesis, University of Jyväskylä, *Fabrication of multilayer structure for DNA-sensor*.

## Grants prior to year 2014

2003, Finnish Cultural Foundation, 10.000 € grant for the salary of researcher.

2004, Emil Aaltonen Foundation, 2.500 € grant for conference travelling costs.

2005, Ulla Tuominen Foundation, 2.000 € grant to PhD work.

2010, Postdoctoral Researcher's project 2011-2013, funded by the Academy of Finland.

## Dissertation supervision and instruction at TUT (since 2008)

**Suvi Lehtimäki**, PhD theses. Graduated 2017. Printed Supercapacitors for Energy Harvesting Applications. (Instructor, Role: co-supervisor).

## Language skills

Finnish: Native speaker

English: Excellent

French: Good

Swedish: Satisfactory

## Projects