


List of publications of Pierre Lambert

List fulfilling the [Guide for applicants 2020](#)'s requirements

1. Published works, as an author, a co-author or a publisher

1. **Lambert, P.**, et al. (2013). *Surface Tension Effects in Microsystems: Engineering Below the Capillary Length*. Springer.
2. **Lambert, P.**, & Raman, V. (2009). *Recueil d'exercices pour le cours de mécanique rationnelle*. Presses Universitaires de Bruxelles.
3. **Lambert, P.** (2007). *Capillary Forces in Microassembly*. NY: Springer.
4. **Lambert, P.** (2004). *Mécanique appliquée: Notes de cours à l'attention des étudiants de première candidature HORTA*. Presses universitaires de Bruxelles.

2. Book chapters or participation to a collective book, as an author or a co-author of the section

1. Toncheva, A., Blanc, L., **Lambert, P.**, Dubois, P., & Raquez, J.-M. (2019). Mechanically Responsive Materials for Soft Robotics. In H. Koshima (Ed.), *Chapter 11: Multi-responsive Polymer Actuators by Thermo-reversible Chemistry* (1 ed., pp. 277-306). Wiley-VCH Verlag GmbH & Co. KGaA.
2. Mastrangeli, M., & **Lambert, P.** (2013). Lateral capillary forces. In *Surface Tension in Microsystems: Engineering Below the Capillary Length* (1 ed., pp. 45-69). Springer.
 <https://dipot.ulb.ac.be/dspace/bitstream/2013/152633/1/MastrangeliCh3.pdf>
3. **Lambert, P.**, & Régnier, S. (2011). Microworld Modeling in Vacuum and Gaseous Environments. In *Robotic Microassembly* (pp. 1-54). Piscataway: John Wiley and Sons. doi:10.1002/9780470634417.ch1
4. **Lambert, P.**, & Régnier, S. (2011). Microworld Modeling: Impact of Liquid and Roughness. In *Robotic Microassembly* (pp. 55-105). Piscataway: John Wiley and Sons. doi:10.1002/9780470634417.ch2
5. Alvo, S., **Lambert, P.**, Gauthier, M., & Régnier, S. (2011). A van der waals force-based adhesion model for micromanipulation. In *Adhesion Aspects in MEMS/NEMS* (pp. 77-90). CRC Press.
6. Chau, A., Régnier, S., Delchambre, A., & **Lambert, P.** (2011). Theoretical and experimental study of the influence of AFM tip geometry and orientation on capillary force. In *Adhesion Aspects in MEMS/NEMS* (pp. 165-176). CRC Press.
7. Gauthier, M., **Lambert, P.**, & Régnier, S. (2010). Microhandling and Micromanipulation Strategies. In *Microrobotics for micromanipulation* (1 ed., pp. 179-242). Wiley. doi:10.1002/9781118622810.ch3

8. Gauthier, M., **Lambert, P.**, & Régnier, S. (2010). The Physics of the Microworld. In *Microrobotics for micromanipulation* (1 ed., pp. 1-98). Wiley. doi:10.1002/9781118622810.ch1
9. Chaillet, N., Hafez, M., & **Lambert, P.** (2010). Actuators for Microrobotics. In *Microrobotics for micromanipulation* (1 ed., pp. 99-178). Wiley. doi:10.1002/9781118622810.ch2
10. Chau, A., **Lambert, P.**, Delchambre, A., & Bouillard, P. (2003). Behaviour of Flexure Hinges for Use as Articulations in High Precision Mechanisms. In H. Knobloch & Y. Kaminorz (Eds.), *MicroNano Integration* (pp. 287-288). Postdam: Springer.(VDI-Buch). doi:10.1007/978-3-642-18727-8_42
11. Agnus, J., Chaillet, N., Hafez, M., Gauthier, M., **Lambert, P.**, & Régnier, S. (s.d.). La microrobotique: applications à la micromanipulation. In *La physique du micromonde*.
12. **Lambert, P.**, Chaillet, N., & Hafez, M. (s.d.). La microrobotique: applications à la micromanipulation. In *Actionneurs pour la microrobotique*. Editions Hermès.
13. Régnier, S., Chaillet, N., & **Lambert, P.** (s.d.). La microrobotique: applications à la micromanipulation. In *Micropréhension et stratégies de micromanipulation*. Editions Hermès.

3. Articles published in peer-review journals

1. Forbes, B., Bommer, R., Goole, J., Hellfritzscht, M., De Kruijfe, W., **Lambert, P.**, Caivanof, G., Regard, A., Schiaretto, F., Trenkeld, M., Vecellio, L., Williams, G., Sonvico, F., & Scherließ, R. (2020). A consensus research agenda for optimising nasal drug delivery. *Expert opinion on drug delivery*.
 <https://dipot.ulb.ac.be/dspace/bitstream/2013/300963/3/Forbes-EPDD2020-Proofs.pdf>
2. Lehmann, O., Rauch, J. Y., Vitry, Y., Pinsard, T., **Lambert, P.**, & Gauthier, M. (2020). Miniaturized robotics: The smallest camera operator bot pays tribute to David Bowie. *IEEE robotics & automation magazine*, 27(3), 10.1109/MRA.2020.2992277, 22-28. doi:10.1109/MRA.2020.2992277
 https://dipot.ulb.ac.be/dspace/bitstream/2013/309035/3/Lehmann2020_manuscript.pdf
3. Iazzolino, A., Tourtit, Y., Chafaï, A., Gilet, T., **Lambert, P.**, & Tadrist, L. (2020). Pick up and release of micro-objects: A motion-free method to change the conformity of a capillary contact. *Soft matter*, 16(3), 754-763. doi:10.1039/c9sm02093d
 https://dipot.ulb.ac.be/dspace/bitstream/2013/303296/3/SoftMatter_Rev_20191117.pdf
4. Wang, J.-P., Francois, B., & **Lambert, P.** (2020). From Basic Particle Gradation Parameters to Water Retention Curves and Tensile Strength of Unsaturated Granular Soils. *International journal of geomechanics*, 26(6), 05020003. doi:10.1061/(ASCE)GM.1943-5622.0001677
 https://dipot.ulb.ac.be/dspace/bitstream/2013/308567/3/38_Wang_et_al_ASCE_GM.pdf
5. Decroly, G., Mertens, B., **Lambert, P.**, & Delchambre, A. (2019). Design, characterization and optimization of a soft fluidic actuator for minimally invasive surgery. *International Journal of Computer Assisted Radiology and Surgery*. doi:10.1007/s11548-019-02081-2





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6. Taniguchi, T., Blanc, L., Asahi, T., Koshima, H., & **Lambert, P.** (2019). Statistical Modeling of Photo-Bending Actuation of Hybrid Silicones Mixed with Azobenzene Powder. *Actuators*, 8(68).
 <https://dipot.ulb.ac.be/dspace/bitstream/2013/295408/3/actuators-08-00068-v2.pdf>
 7. Taniguchi, T., Blanc, L., Asahi, T., Koshimizu, H., & **Lambert, P.** (2019). Statistical Modeling of Photo-Bending Actuation of Hybrid Silicones Mixed with Azobenzene Powder. *Actuators*, 8(68).
 <https://dipot.ulb.ac.be/dspace/bitstream/2013/295400/3/actuators-08-00068-v2.pdf>
 8. Tourtit, Y., Gilet, T., & **Lambert, P.** (2019). Rupture of a Liquid Bridge between a Cone and a Plane. *Langmuir*, 35(37), 11979-11985. doi:10.1021/acs.langmuir.9b01295
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 9. **Lambert, P.**, & Mastrangeli, M. (2019). Microscale surface tension and its applications. *Micromachines*, 10(8), 526. doi:10.3390/mi10080526
 https://dipot.ulb.ac.be/dspace/bitstream/2013/292735/1/doi_276362.pdf
 10. Dehaeck, S., Cavaiani, M., Chafaï, A., Tourtit, Y., Vitry, Y., & **Lambert, P.** (2019). Hybrid Two-Scale Fabrication of Sub-Millimetric Capillary Grippers. *Micromachines*, 10, 224. doi:10.3390/mi10040224
 https://dipot.ulb.ac.be/dspace/bitstream/2013/288547/3/doi_272174.pdf
 11. Blanc, L., Pol, A., Bertrand, F., Delchambre, A., **Lambert, P.**, & Gabrieli, F. (2019). Granular Jamming as Controllable Stiffness Mechanism for Medical Devices. *Trends in mathematics*.
 https://dipot.ulb.ac.be/dspace/bitstream/2013/288549/3/blanc2018_MicroToMacro_ULB_Padova_Paper_postprint.pdf
 12. Wang, J.-P., Andò, E., Charrier, P., Salager, S., **Lambert, P.**, & Francois, B. (2019). Micro-scale investigation of unsaturated sand in mini-triaxial shearing using X-ray CT. *Géotechnique letters*, 9(4), 269-277. doi:10.1680/jgele.18.00214
 https://dipot.ulb.ac.be/dspace/bitstream/2013/308569/3/37_Wang_et_al_2019_Geotechnics_Letters.pdf
 13. Innocenti, B., Larrieu, J.-C., **Lambert, P.**, & Pianigiani, S. (2019). Automatic Characterization of soft tissue material properties during mechanical tests. *Muscles, Ligaments and Tendons Journal*, 7(4), 538.
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 14. Loyez, M., Larrieu, J.-C., Chevineau, S., Rimmelink, M., Leduc, D., Bondue, B., **Lambert, P.**, Devière, J., Wattiez, R., & Caucheteur, C. (2019). In situ cancer diagnosis




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15. Wang, J.-P., **Lambert, P.**, De Kock, T., Cnudde, V., & Francois, B. (2019). Investigation of the effect of specific interfacial area on strength of unsaturated granular materials by X-ray tomography. *Acta Geotechnica*. doi:10.1007/s11440-019-00765-2
https://dipot.ulb.ac.be/dspace/bitstream/2013/284901/3/Wang2019_Investigation_PREPRINT.pdf
 16. Gilet, T., Heepe, L., **Lambert, P.**, Compère, P., & Gorb, S. S. (2018). Liquid secretion and setal compliance: the beetle's winning combination for a robust and reversible adhesion. *Current opinion in insect science (Online)*, 30, 19-25. doi:10.1016/j.cois.2018.08.002
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 17. Toncheva, A., Khelifa, F., Paint, Y., Voué, M., **Lambert, P.**, Dubois, P., & Raquez, J.-M. (2018). Fast IR-Actuated Shape-Memory Polymers Using in Situ Silver Nanoparticle-Grafted Cellulose Nanocrystals. *ACS Applied Materials & Interfaces*, 10(35), 29933-29942. doi:10.1021/acsmi.8b10159
 18. Terrazas Mallea, R., Piron, D., Bolopion, A., **Lambert, P.**, & Gauthier, M. (2018). Thermocapillary convective flows generated by laser points or patterns: Comparison for the noncontact micromanipulation of particles at the interface. *IEEE Transactions on Robotics and Automation*, 3(4), 3255-3262.
 19. Terrazas Mallea, R., Bolopion, A., Beugnot, J.-C., **Lambert, P.**, & Gauthier, M. (2018). Closed-loop particle motion control using laser-induced thermocapillary convective flows at the fluid/gas interface at micrometric scale. *IEEE/ASME transactions on mechatronics*. doi:10.1109/TMECH.2018.2843887
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 20. Dehaeck, S., **Lambert, P.**, & Scheid, B. (2018). Adaptive Stitching for Meso-Scale Printing with Two-Photon Lithography. *Additive Manufacturing*, 21, 589-597. doi:10.1016/j.addma.2018.03.026
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 21. Terrazas Mallea, R., Bolopion, A., Beugnot, J.-C., **Lambert, P.**, & Gauthier, M. (2017). 1D manipulation of a micrometer size particle actuated via thermocapillary convective flows. *Proceedings of the ... IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2017-September, 8202187, 408-413. doi:10.1109/IROS.2017.8202187
 22. Compère, P., **Lambert, P.**, Gernay, S., Labousse, S., & Gilet, T. (2017). Multiscale tarsal adhesion kinematics of freely-walking dock beetles. *Journal of the Royal Society interface*.
 23. Toncheva, A., Willocq, B., Khelifat, F., Douhéret, O., **Lambert, P.**, Dubois, P., & Raquez, J.-M. (2017). Bilayer solvent and vapor-triggered actuators made of cross-linked

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24. Gernay, S. M., Labousse, S., **Lambert, P.**, Compère, P., & Gilet, T. (2017). Multi-scale tarsal adhesion kinematics of freely-walking dock beetles. *Journal of the Royal Society interface*, 14(136), 20170493. doi:10.1098/rsif.2017.0493
 25. Innocenti, B., Larrieu, J.-C., **Lambert, P.**, & Pianigiani, S. (2017). Automatic characterization of soft tissues material properties during mechanical tests. *Muscles, Ligaments and Tendons Journal*, 7(4), 529-537.
 26. Wang, J.-P., Francois, B., & **Lambert, P.** (2017). Equations for hydraulic conductivity estimation from particle size distribution: A dimensional analysis. *Water resources research*, 53(9), 8127-8134. doi:10.1002/2017WR020888
https://dipot.ulb.ac.be/dspace/bitstream/2013/258409/3/Wang_et_al-2017-Water_Resources_Research.pdf
 27. Wang, J.-P., Hu, N., Francois, B., & **Lambert, P.** (2017). Estimating Water Retention Curves and Strength Properties of Unsaturated Sandy Soils from Basic Soil Gradation Parameters. *Water resources research*, 53(7), 6069-6088. doi:10.1002/2017WR020411
https://dipot.ulb.ac.be/dspace/bitstream/2013/253734/3/WRR_paper.pdf
 28. Blanc, L., Delchambre, A., & **Lambert, P.** (2017). Flexible Medical Devices: Review of Controllable Stiffness Solutions. *Actuators*, 6(3), 23. doi:10.3390/act6030023
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 29. Terrazas Mallea, R., Bolopion, A., Beugnot, J.-C., **Lambert, P.**, & Gauthier, M. (2017). Laser-induced thermocapillary convective flows: A new approach for non-contact actuation at microscale at the fluid/gas interface. *IEEE/ASME transactions on mechatronics*, 22(2), 693-704. doi:10.1109/TMECH.2016.2639821
 30. Munoz, E., Quispe, J., **Lambert, P.**, Bolopion, A., Terrazas Mallea, R., Régnier, S., & Vela, E. (2017). Optimizing the Speed of Single Infrared-Laser-Induced Thermocapillary Flows Micromanipulation by Using Design of Experiments. *Journal of micro-bio robotics*. doi:10.1007/s12213-017-0097-3
 31. Fernandez Toledano, J. C., Blake, T., **Lambert, P.**, & De Coninck, J. (2017). On the cohesion of fluids and their adhesion to solids: Young's equation at the atomic scale. *Advances in colloid and interface science*. doi:10.1016/j.cis.2017.03.006
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 32. Mastrangeli, M., Zhou, Q., Sariola, V., & **Lambert, P.** (2017). Surface Tension-driven Self-Alignment. *Soft matter*, 13, 304-327. doi:10.1039/c6sm02078j
<https://dipot.ulb.ac.be/dspace/bitstream/2013/240482/3/c6sm02078j.pdf>
 33. Ribaut, C., Loyez, M., Larrieu, J.-C., Chevineau, S., **Lambert, P.**, Rimmelink, M., Wathiez, R., & Caucheteur, C. C. (2017). Cancer biomarker sensing using packaged plasmonic optical fiber gratings : towards in vivo diagnosis. *Biosensors & bioelectronics*, 92, 449-456. doi:10.1016/j.bios.2016.10.081

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34. Hellegouarch, S., Fueyo Roza, L., Artoos, K., **Lambert, P.**, & Collette, C. (2016). Linear encoder based low frequency inertial sensor. *International Journal of Optomechatronics*, 10(3-4), 120-129. doi:10.1080/15599612.2016.1217109
 35. Gernay, S., Federle, W., **Lambert, P.**, & Gilet, T. (2016). Elasto-capillarity in insect fibrillar adhesion. *Journal of the Royal Society interface*. doi:10.1098/rsif.2016.0371
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 36. Matsuoka, H., Kanda, T., Wakimoto, S., Suzumori, K., & **Lambert, P.** (2016). Development of a rubber soft actuator driven with gas/liquid phase change. *International Journal of Automation Technology*, 10(4), 517-524.
 37. Wang, J.-P., Gallo, E., Francois, B., Gabrieli, F., & **Lambert, P.** (2016). Capillary force and rupture of funicular liquid bridges between three spherical bodies. *Powder technology*, 305, 89-98. doi:10.1016/j.powtec.2016.09.060
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 38. Collette, C., **Lambert, P.**, Hellegouarch, S., Fueyo Roza, L., & Artoos, K. (2015). Linear encoder based low frequency inertial sensor. *MATEC Web of Conferences*, 32, 06001. doi:10.1051/mateconf/20153206001
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 39. Mastrangeli, M., Arutinov, G., Smits, E. C. P., & **Lambert, P.** (2015). Modeling capillary forces for large displacements. *Microfluidics and Nanofluidics*, 18(4), 695-708. doi:10.1007/s10404-014-1469-9
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 40. Arutinov, G., Mastrangeli, M., Van Heck, G., **Lambert, P.**, Den Toonder, J. M. J., Dietzel, A., & Smits, E. C. P. (2015). Capillary Gripping and Self-alignment: A Route Towards Autonomous Heterogeneous Assembly. *IEEE transactions on robotics*, 31(4), 1033 - 1043. doi:10.1109/TRO.2015.2452775
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 41. Buttafuoco, A., Lenders, C., Clavel, R., **Lambert, P.**, & Kinnaert, M. (2014). Design, Manufacturing and Implementation of a Novel 2-Axis Force Sensor for Haptic Applications. *Sensors and actuators. A, Physical.*, sna.2014.01.019. doi:10.1016/j.sna.2014.01.019
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 42. Arutinov, G., Smits, E. C. P., Albert, P., **Lambert, P.**, & Mastrangeli, M. (2014). In-Plane Mode Dynamics of Capillary Self-Alignment. *Langmuir*, 30(43), 13092–13102. doi:10.1021/la502831r
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 48. Dong, W., Gauthier, M., Lenders, C., & **Lambert, P.** (2012). A gas bubble-based parallel micro manipulator: conceptual design and kinematics model. *Journal of micromechanics and microengineering*, 22(5), 057001. doi:10.1088/0960-1317/22/5/057001
 49. Lenders, C., Gauthier, M., Cojan, R., & **Lambert, P.** (2012). Three DOF Microrobotic Platform Based on Capillary Actuation. *IEEE transactions on robotics*, 28(5), 1157-1161. doi:10.1109/TRO.2012.2199009
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 52. Park, J., Nishida, S., **Lambert, P.**, Kawakatsu, H., & Fujita, H. (2011). High-resolution cantilever biosensor resonating at air-liquid in a microchannel. *Lab on a chip*. doi:10.1039/C1LC20608G
 53. Sausse, M., & **Lambert, P.** (2011). Compact polymer multi-nozzles electro spray device with integrated microfluidic feeding system. *Journal of electrostatics*, 69(4), 313-319. doi:10.1016/j.elstat.2011.04.006
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5. Oral presentations during conferences, which include a review committee

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3. De Greef, A., **Lambert, P.**, & Delchambre, A. (2006). *A minimally invasive surgery actuator based on a flexible and inflatable structure*. Paper session presented at IEEE Benelux EMBS Symposium (07-08/12/2006: Bruxelles).
4. Sausse, M., **Lambert, P.**, & Delchambre, A. (2005). *Modelling of electrostatic forces for microassembly*. Paper session presented at Première journée sur la modélisation et l'analyse dimensionnelle (mai 2005: Lausanne).
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6. Patents

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