Simon Henein

Associate Professor, EPFL

List of publications, 6.5.2026

Patents

* *Patents by Instant-Lab team members who are under the supervision Prof. S. Henein*

2026

1. Tissot-Daguette, L., Henein, S. (2026). *Flexure based mechanism with reduced stiffness*. EP4707946 (A1). Assignee : EPFL
2. Tissot-Daguette, L., Henein, S., Cosandier, F. (2026). *Bidirectional positive stiffness flexure mechanism*. EP26162690. Assignee: EPFL

2025

3. Vallat, C., Henein, S. (2025). *Remote centre of motion pivot mechanism*. EP25210443 (A1). Assignee: EPFL.
4. Rubbert, L., Baur, C., Verde, J. M., Wach, B. (2025). *Device for controlling medical shafts*. Patent application (pending). Assignee: EPFL. *

2024

5. Tissot-Daguette, L., Henein, S., Cosandier, F., Vallat, C. (2024). *One degree of freedom linear stages with minimised parasitic shift*. EP24218366.3. Assignee: EPFL.
6. Henein, S., Schneegans, H., Tissot-Daguette, L., Cosandier, F., Baur, C., Khoueiry, R. (2024). *Force and torque sensor assemblies*. EP24208444.0. Assignee: EPFL.
7. Tissot-Daguette, L., Henein, S. (2024). *Flexure-based mechanism with reduced stiffness*. EP24199124.9. Assignee: EPFL.
8. Tissot-Daguette, L., Henein, S. (2024). Pivot, process for manufacturing such a pivot, oscillator comprising such a pivot, watch movement and timepiece comprising such an oscillator. WO2024100597 (A1). Assignee: EPFL.
9. Favre, J., Jolles-Haeberli, B., Ulrich, B., Baur, C., Rivera, J., Hoffmann, L. (2024). *Article of orthopedic footwear*. WO2024121418 (A1). Assignees: EPFL, CHUV.*

2023

10. Flückiger, P., Baur, C., Schneegans, H. (2023). *Flexure-based planar XY transition table*. EP4101581 (A1). Assignee: EPFL.*

2022

11. Rubbert, L., Baur, C. (2022). *Flexible surgical device with controllable stiffness*. EP4094697 (A1). Assignee: EPFL.*
12. Tissot-Daguette, L., Baur, C., Schneegans, H., Bertholds, A., Llosas, P. (2022). *Detection mechanism for a medical sensing tool, medical sensing tool*. WO2022253808. Assignee: EPFL.*
13. Baur, C., Schneegans, H., Tissot-Daguette, L., Clogenson, M., Bonnefoy, L., Gumowski, J. (2022). *System for moving a patient*. WO2022079038 (A1). Assignee: EPFL.*

2021

14. Tissot-Daguette, L., Henein, S., Smreczak, M., Dagon, B. (2021). *Flexure pivot-based system*. US20240019325 (A1). Assignee: EPFL.
15. Thalmann, E., Henein, S. (2021). Procédés de réalisation et de réglage d'un oscillateur à guidage flexible et mouvement horloger comprenant un tel oscillateur. EP4163735 (A1). Assignee: Patek Philippe SA.

16. Thalmann, E., Henein, S., Chabloz, D. (2021). *Composant à pivot flexible, notamment pour l'horlogerie (TRIVOT)*. EP4163735 (A1). Assignee: Patek Philippe SA.

2020

17. Gillet, R., Henein, S., Nussbaumer, B. (2020). Crank arrangement for driving a mechanical oscillator. EP3739394 (A1). Assignee: EPFL.
18. Kahrobaiyan, M. H., Nussbaumer, B., Henein, S., Maurel, A. (2020). Two degree of freedom oscillator system. EP3719584 (A1). Assignee: EPFL.
19. Kahrobaiyan, M. H., Zanaty, M., Henein, S. (2020). Mechanical oscillator with tunable isochronism defect. EP3722888 (A1). Assignee: EPFL.
20. Kahrobaiyan, M. H., Baur, C., Henein, S., Zanaty, M. (2020). Device for measuring a force exerted on an object. WO2020207911 (A1). Assignee: EPFL.
21. Henein, S., Baur, C., Fussinger, T., Schneegans, H., Bonnefoy, L. (2020). Sensor system. US2020268320 (A1). Assignee: EPFL.

2019

22. Kahrobaiyan, M. H., Thalmann, E., Henein, S. (2019). *Flexure pivot oscillator insensitive to gravity*. WO2020016131 (A1). Assignee: Patek Philippe SA.
23. Vardi, I., Henein, S., Mathez, O. (2019). *Automatically starting and secured detent escapement for a timepiece*. US2019361397 (A1). Assignee: Audemars Piguet.
24. Kahrobaiyan, M. H., Vardi, I., Henein, S., Nussbaumer, B., Thalmann, E. (2019). *Horological oscillator*. WO2019141789 (A1). Assignee: EPFL.
25. Henein, S., Vardi, I., Rubbert, L. (2019). General two-degree-of-freedom isotropic harmonic oscillator and associated time base without escapement or with simplified escapement. US2019227493 (A1). Assignee: EPFL.

2018

26. Zanaty, M., Henein, S. (2018). *Programmable multistable system*. EP3266737 (A1). Assignee: Patek Philippe SA.
27. Zanaty, M., Baur, C., Henein, S. (2018). *Device for controlled puncturing of an object*. WO2018015488 (A1). Assignee: EPFL.
28. Kahrobaiyan, M. H., Vardi, I., Henein, S. (2018). *Mechanical oscillator*. EP3339969 (A1). Assignee: EPFL.

2017

29. Vardi, I., Henein, S., Mathez, O., Philippine, T. (2017). *Bi-functional dart, locking and securing device for horological components and horological escapement*. CH712288 (A1). Assignee: Audemars Piguet.

2016

30. Bertholds, A., Llosas, P., Henein, S., Baur, C. (2016). *Needle for invasive medical use and needle assembly*. EP3094362 (A1). Assignee: Sensoptic SA.

2015

31. Henein, S., Vardi, I., Rubbert, L. (2015). Isotropic harmonic oscillator and associated time base without escapement or with simplified escapement. EP2894521 (A1). Assignee: EPFL.
32. Henein, S., Vardi, I., Rubbert, L. (2015). General two-degree-of-freedom isotropic harmonic oscillator and associated time base without escapement or with simplified escapement. WO2015104692 (A2). Assignee: EPFL.
33. Henein, S., Kjelberg, I. (2015). *Timepiece oscillator*. EP2911012 (A1). Assignee: CSEM.

2014

34. Bertholds, A., Llosas, P., Henein, S. (2014). *Optical measuring element having a single-piece structure*. US8659762 (B2). Assignee: Kistler Holding AG.

2013

35. Bertholds, A., Llosas, P., Henein, S. (2013). *Optical force sensing element and microsurgical instrument*. US2013204142 (A1). Assignee: Sensoptic SA.
36. Barrot, F., Fournier, R., Giriens, L., Henein, S., Jeanneret, S., Kruis, J. (2013). *Method for releasing a micromechanical part and micromechanical part comprising sacrificial attachments*. WO2013093108 (A1). Assignee: CSEM.

2012 - 1998

37. Colpo, F., Henein, S. (2011). *Immobilizing device for a toothed wheel*. WO2011120180 (A1). Assignee: Rolex SA.
38. Henein, S., Schwab, P. (2010). Isochronism corrector for clockwork escapement and escapement provided with such a corrector. US7693443 (B2). Assignee: CSEM SA.
39. Henein, S., Bertholds, A., Llosas, P. (2009). *Optical measuring element with single-piece structure*. WO2009114955 (A1). Assignee: Kistler Holding AG.
40. Henein, S. (2007). Device for converting a first motion into a second motion responsive to said first motion under a demagnification scale. US20100313691 (A1). Assignee: Paul Scherrer Institute.
41. Henein, S., Thurner, M. (2002). *Micro-gripper*. EP1433575 (A1). Assignee: CSEM SA.
42. Henein, S., Boillat, P., Jacot, J. (2000). *Power sensing device*. EP1154253 (A1). Assignee: Sensile Technologies SA.
43. Henein, S., Bottinelli, S., Aymon, C., Clavel, R. (2000). *Motion transmission device*. EP1113191 (A2). Assignee: Agie SA.
44. Henein, S., Bottinelli, S., Aymon, C. (1998). *Flexible pivot with large angular range and high stiffness*. EP1013949 (A1). Assignee: Symelec SA.

Peer-reviewed scientific journal articles

** Journal articles by Instant-Lab team members who are under the supervision Prof. S. Henein.*

2026

1. Thomas, S., Tissot-Daguette, L., Martinez, T., Baur, C., Perriard, Y. (2026). Design and modelling of a flexure-based bistable gripper powered by shape memory alloys. *Smart Materials and Structures*, **35**(1), 015035. DOI: 10.1088/1361-665X/ae3268. [InfoscienceLink] *
2. Vallat, C., Tissot-Daguette, L., Cosandier, F., Henein, S. (2026). Optimized design of generalized flexure rotational couplers. *Precision Engineering*, **97**, 961–976. DOI: 10.1016/j.precisioneng.2025.11.009 [InfoscienceLink]

2025

3. Billard, A., Bouri, M., Sakar, M. S., Paik, J., Ijspeert, A., Bleuler, H., Bellouard, Y., Jones, C., Baur, C., Mondada, F., Henein, S., Helmer, P., Floreano, D., Martinoli, A. (2025). In memoriam – Professor Reymond Clavel. *IEEE Robotics & Automation Magazine*, **32**(3), 213–214. [InfoscienceLink]
4. Tissot-Daguette, L., Vallat, C., Nijenhuis, M., Cosandier, F., Henein, S. (2025). Near-zero parasitic shift rectilinear flexure stages based on coupled n-RRR planar parallel mechanisms. *Machines*, **13**(6), 530. DOI: 10.3390/machines13060530 [InfoscienceLink]
5. Schneegans, H., Cosandier, F., Henein, S. (2025). Dynamic balancing of a flexure-based Watt's linkage horological oscillator. *Precision Engineering*, **93**, 576–586. DOI: 10.1016/j.precisioneng.2025.02.009 [InfoscienceLink]
6. Tissot-Daguette, L., Cosandier, F., Gubler, Q., Pétremand, Y., Despont, M., Henein, S. (2025). Residual stress chevron preloading amplifier for large-stroke stiffness reduction of silicon flexure mechanisms. *Journal of Micromechanics and Microengineering*, **35**(2), 025003. DOI: 10.1088/1361-6439/ada165 [InfoscienceLink]

2024

7. Tissot-Daguette, L., Cosandier, F., Thalmann, E., Henein, S. (2024). Near-zero parasitic shift flexure pivots based on coupled n-RRR planar parallel mechanisms. *Journal of Mechanisms and Robotics*, **16**(11), 111001. DOI: 10.1115/1.4065074 [ArticleLink]
8. Flückiger, P., Cosandier, F., Schneegans, H., Henein, S. (2024). Design of a flexure-based flywheel for the storage of angular momentum and kinetic energy. *Machines*, **12**(4), 232. DOI: 10.3390/machines12040232 [InfoscienceLink]
9. Schneegans, H., De Jong, J. J., Cosandier, F., Henein, S. (2024). Mechanism balancing taxonomy. *Mechanism and Machine Theory*, **191**, 105518. DOI: 10.1016/j.mechmachtheory.2023.105518 [InfoscienceLink]
10. Bovet, A., Keel, S., Relieu, M. (2024). Touch and Closeness in Naturally Organized Activities. *Human Studies*, **46**, 645-653. DOI: 10.1007/s10746-023-09703-4. [InfoscienceLink] *

2023

11. Schneegans, H., Cosandier, F., Henein, S. (2023). Mechanism balancing taxonomy for the classification of horological oscillators. *Bulletin de la Société Suisse de Chronométrie*, **96**, 63–68. [InfoscienceLink]
12. Bovet, A. (2023). Distance, Closeness and Touch in and as an Improvised Duet Dance: How to "Move a Bit Further Away" with a Partner. Human Studies, **46**, 807-835. DOI : 10.1007/s10746-023-09679-1. [InfoscienceLink] *

2022

13. Thalmann, E., Gubler, Q., Henein, S. (2022). Gravity-compensation design approaches for flexure-pivot time bases. *Machines*, **10**(7), 580. DOI: 10.3390/machines10070580 [InfoscienceLink]
14. Smreczak, M., Tissot-Daguette, L., Thalmann, E., Baur, C., Henein, S. (2022). A load cell with adjustable stiffness and zero-offset tuning dedicated to electrical micro- and nanoprobing. *Precision Engineering*, **76**, 208–225. DOI: 10.1016/j.precisioneng.2022.03.009 [InfoscienceLink]
15. Thalmann, E., Henein, S. (2022). Triple crossed flexure pivot based on a zero parasitic center shift kinematic design. *Journal of Mechanisms and Robotics*, **14**(4), 045001. DOI: 10.1115/1.4053471 [InfoscienceLink]
16. Tissot-Daguette, L., Schneegans, H., Thalmann, E., Henein, S. (2022). Analytical modeling and experimental validation of rotationally actuated pinned–pinned and fixed–pinned buckled-beam bistable mechanisms. *Mechanism and Machine Theory*, **174**, 104874. DOI: 10.1016/j.mechmachtheory.2022.104874 [InfoscienceLink]
17. Tau, R., Kloetzer, L., Henein, S. (2022). The dimension of the body in higher education: Matrix of meanings in students' diaries. *Human Arenas*, **5**, 441–468. DOI: 10.1007/s42087-021-00206-1 [InfoscienceLink]

2021

18. Schneegans, H., Thalmann, E., Henein, S. (2021). Shaking force balancing of a two-degree-of-freedom isotropic horological oscillator. *Precision Engineering*, **72**, 502–520. DOI: 10.1016/j.precisioneng.2021.06.003. [InfoscienceLink]
19. Kloetzer, L., Henein, S., Tau, R., Martin, S., Valterio, J. (2021). Teaching through performing arts in higher education: Examples in engineering and psychology. *Scenario*, **14**(2), 1–25. DOI: 10.33178/scenario.14.2.1. [ArticleLink]
20. Thalmann, E., Henein, S. (2021). Design of a flexure rotational time base with varying inertia. *Journal of Mechanical Design*, **143**(11), 115001. DOI: 10.1115/1.4050558. [InfoscienceLink]
21. Kloetzer, L., Tau, R., Valterio, J., Henein, S. (2021). Performing arts as a tool for university education during a pandemic. *Qwerty*, **16**(2), 47–68. DOI: 10.30557/QW000043. [InfoscienceLink]

2020

22. Flückiger, P., Vardi, I., Henein, S. (2020). Foucault pendulum properties of spherical oscillators. *Review of Scientific Instruments*, **91**, 095115.
DOI: 10.1063/5.0010759. [InfoscienceLink]

23. Zanaty, M., Schneegans, H., Vardi, I., Henein, S. (2020). Reconfigurable logic gates based on programmable multistable mechanisms. *Journal of Mechanisms and Robotics*, **12**(2), 021111.
DOI: 10.1115/1.4045970. [InfoscienceLink]

24. Thalmann, E., Kahrobaiyan, M. H., Vardi, I., Henein, S. (2020). Flexure pivot oscillator with intrinsically tuned isochronism. *Journal of Mechanical Design*, **142**(7), 075001.
DOI: 10.1115/1.4045388. [InfoscienceLink]

2019

25. Zanaty, M., Fussinger, T., Rogg, A., Lovera, A., Lambelet, D., Vardi, I., Wolfensberger, T., Baur, C., Henein, S. (2019). Programmable multistable mechanisms for safe surgical puncturing. *Journal of Medical Devices*, **13**(2), 021002.
DOI: 10.1115/1.4043016. [InfoscienceLink]

26. Martin, S. (2019). Mesearch and the Performing Body. *Dance Research*, **37**, 120-121.
DOI: 10.3366/drs.2019.0262. [InfoscienceLink] *

2018

27. Zanaty, M., Henein, S. (2018). Experimental characterization of a T-shaped programmable multistable mechanism. *Journal of Mechanical Design*, **140**, 092301.
DOI: 10.1115/1.4040173. [InfoscienceLink]

28. Zanaty, M., Vardi, I., Henein, S. (2018). Programmable multistable mechanisms: Synthesis and modeling. *Journal of Mechanical Design*, **140**(4), 042301.
DOI: 10.1115/1.4038926. [InfoscienceLink]

29. Kahrobaiyan, M. H., Thalmann, E., Rubbert, L., Vardi, I., Henein, S. (2018). Gravity-insensitive flexure pivot oscillators. *Journal of Mechanical Design*, **140**(7), 075002.
DOI: 10.1115/1.4039887. [InfoscienceLink]

30. Henein, S., Vardi, I. (2018). Horloge neuchâteloise du XXIe siècle équipée de l'oscillateur IsoSpring. *Chronométrophilia*, **82**, 107–113. [InfoscienceLink]

31. Foresti-Kasapi, C., Vardi, I. (2018). Le sens de la recherche. *Bulletin de la Société Suisse de Chronométrie*, **86**. [InfoscienceLink] *

32. Vardi, I., Bitterli, R., Convert, L., Thalmann, E., Henein, S. (2018). Échappements à impulsion virtuelle. *Bulletin de la Société Suisse de Chronométrie*, **85**, 25–32. [InfoscienceLink]

33. Vardi, I., Rubbert, L., Bitterli, R., Ferrier, N., Kahrobaiyan, M. H., Nussbaumer, B., Henein, S. (2018). Theory and design of spherical oscillator mechanisms. *Precision Engineering*, **51**, 499–513.
DOI: 10.1016/j.precisioneng.2017.10.005. [InfoscienceLink]

2017 - 1997

34. Henein, S., Vardi, I. (2017). Une horloge mécanique sans tic-tac. *Pour la Science*, **474**, 48–54. [InfoscienceLink]

35. Donzé, P.-Y., Vardi, I., Henein, S. (2017). La R&D commune entreprises-université dans l'industrie horlogère de 1900 à nos jours. *Bulletin de la Société Suisse de Chronométrie*, **83**, 21–28. [InfoscienceLink]

36. Rubbert, L., Charpentier, I., Henein, S., Renaud, P. (2017). Higher-order continuation method for the rigid-body kinematic design of compliant mechanisms. *Precision Engineering*, **50**, 455–466.
DOI: 10.1016/j.precisioneng.2017.06.021. [InfoscienceLink]

37. Fujita, T., Shin, J. E., Cunnane, M., Fujita, K., Henein, S., Psaltis, D., Stankovic, K. (2016). Surgical anatomy of the human round window region. *Otology & Neurotology*, **37**, 1189–1194.
DOI: 10.1097/MAO.0000000000001074. [InfoscienceLink]

38. Rubbert, L., Bitterli, R., Ferrier, N., Fifanski, S., Vardi, I., Henein, S. (2016). Isotropic springs based on parallel flexure stages. *Precision Engineering*, **43**, 132–145.
DOI: 10.1016/j.precisioneng.2015.07.003. [InfoscienceLink]

39. Henein, S. (2015). Guidages flexibles. *Revue Polytechnique*, **1805**, 22–23. [InfoscienceLink]

40. Janphuang, P., Lockhart, R., Isarakorn, D., Henein, S., Briand, D., De Rooij, N. (2015). Harvesting energy from a rotating gear using an AFM-like MEMS piezoelectric frequency up-converting energy harvester. *Journal of Microelectromechanical Systems*, **24**(3), 742–754.
DOI: 10.1109/JMEMS.2014.2349794. [InfoscienceLink]

41. Clogenson, M., Duff, J. M., Luethi, M., Levivier, M., Meuli, R., Baur, C., Henein, S. (2014). A statistical shape model of the human second cervical vertebra. *International Journal of Computer Assisted Radiology and Surgery*, **10**(7), 1097–1107.
DOI: 10.1007/s11548-014-1121-x. [InfoscienceLink]

42. Breguet, J.-M., Henein, S., Kjelberg, I., Gumy, M., Glettig, W., Lecompte, S., Boiko, D., Mitev, V. (2013). Tunable extended-cavity diode laser based on a novel flexure mechanism. *International Journal of Optomechatronics*, **7**, 181–192.
DOI: 10.1080/15599612.2013.807528. [InfoscienceLink]

43. Henein, S. (2012). Short communication: Flexure delicacies. *Mechanical Sciences*, **3**(1), 1–4.
DOI: 10.5194/ms-3-1-2012. [InfoscienceLink]

44. Clavel, R., Helmer, P., Bottinelli, S., Henein, S., Schmitt, C., Pérez, R., et al. (2001). Contribution aux concepts de micro- et nanofactory. *Nano et Micro Technologies*, **1**(3–4), 457–495. [InfoscienceLink]

45. Pernette, E., Henein, S., Magnani, I., Clavel, R. (1997). Design of parallel robots in microrobotics. *Robotica*, **15**(4), 417–420.
DOI: 10.1017/S0263574797000519. [InfoscienceLink]

— Preprints (not peer-reviewed)

46. Vallat, C., Tissot-Daguette, L., Cosandier, F., Henein, S. (2025). Rectilinear flexure-based translation stage family with minimized parasitic shift, high support stiffness and large range of motion. *Preprint*.
DOI: 10.31224/4458

47. Flückiger, P., Vardi, I., Tissot-Daguette, L., Schneegans, H., Henein, S. (2021). Flexure wheels for spacecraft attitude control. *Preprint*.
DOI: 10.31224/osf.io/trka6

48. Thalmann, E., Henein, S. (2019). Conceptual design of a rotational mechanical time base with varying inertia. *Preprint*.
DOI: 10.31224/osf.io/kjhbx

Books & Book Chapters

— Books

1. Tau, R., Kloetzer, L., Henein, S. (2024). *Barefoot Academic Teaching*. Schibri-Verlag, 204 pp.
ISBN: 978-3-86863-280-4. [InfoscienceLink]

2. Henein, S., Valterio, J. (2018). *Improgineering – Création collective: arts improvisés et ingénierie* (1st ed.). Instant-Lab – EPFL, Lausanne, 56 pp. [InfoscienceLink]

3. Henein, S. (2001). *Conception des guidages flexibles* (1st, 2nd and 3rd eds., 2001, 2002, 2013). Presses Polytechniques et Universitaires Romandes (PPUR), Lausanne, 225 pp. [InfoscienceLink]

— Book Chapters

1. Henein, S., Valterio, J., Galvez Perez, M. A., Abenia, T., Lafontaine, J. (2024). Dissonant geometry. In *Huang, J., Diener, D., Trazic, L., Weber, K. Z. (Eds.), Transcalar prospects in climate crisis: Architectural research in re/action*. Lars Müller Publishers. [InfoscienceLink]

2. Cosandier, F., Henein, S., Richard, M., Rubbert, L. (2017). Stiffnesses. In *The art of flexure mechanism design* (Section 6.4, pp. 124–131). EPFL Press.
ISBN: 978-2-940222-56-8. [InfoscienceLink]

3. Clavel, R., Henein, S., Richard, M. (2013). Flexures for high-precision manipulation robots. In Grossard, M., Chaillet, N., Régnier, S. (Eds.), *Flexible robotics: Applications to multiscale manipulations*. Wiley-ISTE. [InfoscienceLink]

4. Henein, S. (2013). Library of compliant mechanisms. In Howell, L. L., Magleby, S. P., Olsen, B. M. (Eds.), *Handbook of compliant mechanisms*. Wiley-Blackwell. [InfoscienceLink]

5. Clavel, R., Henein, S., Richard, M. (2013). Guidage flexible pour les robots manipulateurs à très haute précision. In Grossard, M., Chaillet, N., Régnier, S. (Eds.), *Structures flexibles – Applications à la manipulation robotique multi-échelle*. Lavoisier (Hermes Science), Paris. [InfoscienceLink]

Conference proceedings and other publications

2025

1. Cosandier, F., Nijenhuis, M., Huser, J., Henein, S. (2025). Design of a flexure-based constant-velocity joint optimized for high axial loads. *21st European Space Mechanisms and Tribology Symposium (ESMATS 2025)*, Lausanne, Switzerland, September 24–26. [InfoscienceLink]

2. Tissot-Daguette, L., Cosandier, F., Henein, S. (2025). Three-beam constant-force flexure-based translation stage. *25th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2025)*, Zaragoza, Spain, June 9–13. [InfoscienceLink]

3. Tissot-Daguette, L., Cosandier, F., Henein, S. (2025). Zero-force rectilinear flexure-based translation stage: Experimental validation. *25th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2025)*, Zaragoza, Spain, June 9–13. [InfoscienceLink]

2024

4. Studer, M., Cross, E. S., Henein, S. (2024). Exploring the impact and challenges of an embodied and improvisation-based course: Insights from engineering students. *52nd Annual Conference of the European Society for Engineering Education (SEFI 2024)*, Lausanne, Switzerland, September 2–5. [ArticleLink]

5. Tissot-Daguette, L., Prêcheur Llarena, S., Baur, C., Henein, S. (2024). Fully compliant snap-through bistable gripper mechanism based on a pinned–pinned buckled beam. *24th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2024)*, Dublin, Ireland, June 6–10. [InfoscienceLink]

6. Prêcheur Llarena, S., Tissot-Daguette, L., Ghorbani, M., Baur, C., Henein, S. (2024). Shape memory alloy mechanical actuator with reduced commutation time. *24th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2024)*, Dublin, Ireland, June 6–10. [InfoscienceLink]

7. Flückiger, P., Schneegans, H., Prêcheur Llarena, S., Baur, C., Henein, S. (2024). High-precision flexure-based XY stage with high stiffness and load capacity. *24th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2024)*, Dublin, Ireland, June 6–10. [InfoscienceLink]

2023

8. Tissot-Daguette, L., Thalmann, E., Cosandier, F., Henein, S. (2023). Zero parasitic shift pivoting kinematic structures based on coupled n-RRR planar parallel mechanisms for flexure pivot design. *ASME International Design Engineering Technical Conferences (IDETC-CIE 2023) / Mechanisms and Robotics Conference*, Boston, MA, USA, August 20–23.
DOI: 10.1115/DETC2023-109120. [InfoscienceLink]

9. Salamin, L., Saudan, H., Cosandier, F., Kiener, L., Klauser, E., Blondiaux, N., Boudoire, F., Kalentics, N., Tissot-Daguette, L., Henein, S. (2023). Damping of flexure blades based on bi-material additive manufacturing. *23rd International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2023)*, Copenhagen, Denmark, June 12–16. [InfoscienceLink]

2022

10. Kloetzer, L., Henein, S., Tau, R. (2022). Improgineering: Former à la conception collective par l'improvisation. *56e Congrès de la Société d'Ergonomie de Langue Française (SELF 2022)*, Geneva, Switzerland, July 6–8. [InfoscienceLink]
11. Smreczak, M., Schneegans, H., Baur, C., Henein, S. (2022). Active load cell with positive, negative and zero stiffness operating modes for micronewton-range contact force monitoring. *22nd International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2022)*, Geneva, Switzerland, May 30–June 3. [InfoscienceLink]
12. Tissot-Daguette, L., Schneegans, H., Gubler, Q., Baur, C., Henein, S. (2022). Rectilinear translation four-bar flexure mechanism based on four remote center compliance pivots. *22nd International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2022)*, Geneva, Switzerland, May 30–June 3. [InfoscienceLink]

2021

13. Mandon, N., Bitterli, R., Flückiger, F., Gubler, Q., Vardi, I., Henein, S. (2021). La géométrie du tourbillon. *Journée d'étude de la Société Suisse de Chronométrie (JE 2021)*, Lausanne, Switzerland, September 28. [ArticleLink]
14. Thalmann, E., Henein, S. (2021). Design of a triple crossed flexure pivot with minimized parasitic shift. *ASME International Design Engineering Technical Conferences (IDETC-CIE 2021)*, Virtual conference, August 17–19. DOI: 10.1115/DETC2021-67948. [InfoscienceLink]
15. Bourquin, V., Vardi, I., Henein, S. (2021). Rocker oscillator time bases. 21st International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2021), Copenhagen, Denmark, June 7–10. [InfoscienceLink]
16. Thalmann, E., Nussbaumer, B., Henein, S. (2021). Optical rotating torque sensor with nanonewton-meter resolution based on a hanging torsion wire. *21st International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2021)*, Copenhagen, Denmark, June 7–10. [InfoscienceLink]
17. Thalmann, E., Henein, S. (2021). Optical measurement method for mechanical time base characterization. *21st International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2021)*, Copenhagen, Denmark, June 7–10. [InfoscienceLink]
18. Tissot-Daguette, L., Smreczak, M., Baur, C., Henein, S. (2021). Load cell with adjustable stiffness based on a preloaded T-shaped flexure pivot. *21st International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2021)*, Copenhagen, Denmark, June 7–10. [InfoscienceLink]
19. Tissot-Daguette, L., Baur, C., Bertholds, A., Llosas, P., Henein, S. (2021). Design and modelling of a compliant constant-force surgical tool for objective assessment of ossicular chain mobility. *21st International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2021)*, Virtual conference, June 20–25. DOI: 10.1109/Transducers50396.2021.9495605. [InfoscienceLink]

2020

20. Flückiger, P., Vardi, I., Henein, S. (2020). Design of a flexure-based low-frequency Foucault pendulum. *ASME International Design Engineering Technical Conferences (IDETC-CIE 2020)*, Online, August 17–19. DOI: 10.1115/DETC2020-22075. [InfoscienceLink]
21. Zanaty, M., Vardi, I., Henein, S. (2020). Tuning stiffness nonlinearity: Theory and applications. *ASME International Design Engineering Technical Conferences (IDETC-CIE 2020)*, Online, August 17–19. DOI: 10.1115/DETC2020-22227. [InfoscienceLink]
22. Bonnefoy, L., Baur, C., Bellouard, Y., Henein, S. (2020). Bistable puncturing tool for retinal vein cannulation. *20th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2020)*, Geneva, Switzerland, June 8–12. [InfoscienceLink]
23. Schneegans, H., Vardi, I., Henein, S. (2020). Statically and dynamically balanced oscillator based on Watt's linkage. *20th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2020)*, Geneva, Switzerland, June 8–12. [InfoscienceLink]
24. Flückiger, P., Vardi, I., Henein, S. (2020). Foucault pendulum properties of spherical oscillators. *20th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2020)*. Geneva, Switzerland, June 8-12 [InfoscienceLink]

2019

25. Zanaty, M., Schneegans, H., Vardi, I., Henein, S. (2019). Programmable logic gates based on tunable multistable mechanisms. *ASME International Design Engineering Technical Conferences (IDETC-CIE 2019)*, Anaheim, CA, USA, August 18–21.
DOI: 10.1115/DETC2019-97647. [InfoscienceLink]

26. Vardi, I., Henein, S. (2019). À la recherche du temps précis: La découverte de l'oscillateur. *Congrès International de Chronométrie 2019*, Montreux, Switzerland, September 9–16. [InfoscienceLink]

2018

27. Zanaty, M., Henein, S. (2018). Programmable constant-force multistable mechanisms. *ASME International Design Engineering Technical Conferences (IDETC-CIE 2018)*, Quebec City, Canada, August 26–29.
DOI: 10.1115/DETC2018-85248. [InfoscienceLink]

28. Thalmann, E., Kahrobaiyan, M. H., Henein, S. (2018). Flexure-pivot oscillator restoring torque nonlinearity and isochronism defect. *ASME International Design Engineering Technical Conferences (IDETC-CIE 2018)*, Quebec City, Canada, August 26–29.
DOI: 10.1115/DETC2018-85863. [InfoscienceLink]

2017

29. Kahrobaiyan, M. H., Zanaty, M., Henein, S. (2017). An analytical model for beam flexure modules based on the Timoshenko beam theory. *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC-CIE 2017)*, Cleveland, OH, USA, August 6–9.
DOI: 10.1115/DETC2017-67512. [InfoscienceLink]

30. Kruis, J., Cosandier, F., Barrot, F., Vardi, I., Henein, S. (2017). The isostatic three-body problem: A complete solution. *17th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2017)*, Hannover, Germany, May 29–June 2. [InfoscienceLink]

31. Fifanski, S., Rivera, J., Clogenson, M., Baur, C., Bertholds, A., Llosas, P., Wolfensberger, T., Henein, S. (2017). VivoForce instrument for retinal microsurgery. *Surgetica 2017*, Strasbourg, France, November 20–22. [InfoscienceLink]

32. Zanaty, M., Rogg, A., Fussinger, T., Lovera, A., Baur, C., Bellouard, Y., Henein, S. (2017). Safe puncture tool for retinal vein cannulation. *ASME Design of Medical Devices Conference (DMD 2017)*, Eindhoven, The Netherlands, November 14–15. [InfoscienceLink]

2016

33. Kahrobaiyan, M. H., Rubbert, L., Vardi, I., Henein, S. (2016). Gravity-insensitive flexure pivots for watch oscillators. *Congrès International de Chronométrie (CIC 2016)*, Montreux, Switzerland, September 28–29. [InfoscienceLink]

2015

34. Kahrobaiyan, M. H., Vardi, I., Ahmadian, M. T., Henein, S. (2015). Investigating the size-dependent static and dynamic behavior of circular microplates subjected to capillary force. *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC-CIE 2015)*, Boston, MA, USA, August 2–5.
DOI: 10.1115/DETC2015-46487. [InfoscienceLink]

35. Laesser, O., Henein, S. (2015). Analyse, synthèse et création d'échappements horlogers par la théorie des engrenages. *Journée d'étude de la Société Suisse de Chronométrie*, Lausanne, Switzerland, September 16. [InfoscienceLink]

36. Henein, S., Vardi, I. (2015). The geometry of eye movement dynamics. *18th European Conference on Eye Movements (ECEM 2015)*, Vienna, Austria, August 16–21. [InfoscienceLink]

2014

37. Henein, S., Vardi, I., Rubbert, L., Bitterli, R., Ferrier, N., Fifanski, S., Lengacher, D. (2014). IsoSpring: Vers la montre sans échappement. *Journée d'étude de la Société Suisse de Chronométrie*, Lausanne, Switzerland, September 17. [InfoscienceLink]

38. Barrot, F., Dubochet, O., Henein, S., Genequand, P., Giriens, L., Kjelberg, I., Renevey, P., Schwab, P. (2014). Un nouveau régulateur mécanique pour une réserve de marche exceptionnelle. *Journée d'étude de la Société Suisse de Chronométrie*, Lausanne, Switzerland, September 17. [InfoscienceLink]

2013

39. Kruis, J., Barrot, F., Giriens, L., Bayat, D., Fournier, R., Henein, S., Jeanneret, S. (2013). Design and fabrication of a novel centimeter-scale three-dimensional silicon tip–tilt–piston mirror mechanism. *13th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2013)*, Berlin, Germany, May 27–31. [InfoscienceLink]

40. Janphuang, P., Lockhart, R., Henein, S., Briand, D., De Rooij, N. (2013). Experimental determination of the efficiency of piezoelectric impact-type energy harvesters using a rotational flywheel. *13th International Workshop on Power MEMS*, London, UK, December 3–6.
DOI: 10.1088/1742-6596/476/1/012137. [InfoscienceLink]

2012

41. Barrot, F., Henein, S., Spanoudakis, P., Giriens, L., Perruchoud, G., Schwab, P. (2012). Focusing system flexure mechanism for the close-up imager instrument of the ExoMars rover. *12th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2012)*, Stockholm, Sweden, June 4–6. [InfoscienceLink]

2011 - 1997

42. Henein, S., Barrot, F., Jeanneret, S., Fournier, R., Giriens, L., Gumy, M., Droz, S., Toimil, M. (2011). Silicon flexures for the sugar-cube delta robot. *11th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2011)*, Como, Italy, May 23–26. [InfoscienceLink]

43. Henein, S., Spanoudakis, P., Schwab, P., Kjelberg, I., Giriens, L., Dassa, L. (2010). Flexure-based pointing mechanism with sub-microradian resolution for the Laser Interferometer Space Antenna. *10th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2010)*, Delft, The Netherlands, May 31–June 4. [InfoscienceLink]

44. Henein, S. (2010). Flexures: Simply subtle. *6th International Conference on Mechanical Engineering Design of Synchrotron Radiation Equipment and Instrumentation (MEDSI 2010)*, Oxford, UK, September 30.
DOI: 10.1017/S204482011000002. [InfoscienceLink]

45. Henein, S., Spanoudakis, P., Schwab, P., Giriens, L., Lisowski, L., Onillon, E., Welte, Y., Dassa, L., Greger, R., Langer, U. (2009). Design and development of the point-ahead angle mechanism for the Laser Interferometer Space Antenna (LISA). *13th European Space Mechanisms and Tribology Symposium (ESMATS 2009)*, Vienna, Austria, September 23–25. [InfoscienceLink]

46. Spanoudakis, P., Giriens, L., Henein, S., Lisowski, L., O'Hare, A., Onillon, E., Schwab, P., Theurillat, P. (2008). Configurable slit-mask unit of the Multi-Object Spectrometer for Infrared Exploration for the Keck telescope. *SPIE Astronomical Telescopes and Instrumentation*, Marseille, France, July 18. [InfoscienceLink]

47. Henein, S., Stampanoni, M., Frommherz, U., Riina, M. (2007). The Nanoconverter: A flexure-based mechanism to convert microns into nanometers. *7th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2007)*, Bremen, Germany, May 20–24. [InfoscienceLink]

48. Zelenika, S., Munteanu, M. G. H., Henein, S. (2006). Optimized high-precision flexural hinge shapes. *6th International Conference of the European Society for Precision Engineering and Nanotechnology (Euspen 2006)*, Baden bei Wien, Austria, May 28–June 1. [InfoscienceLink]

49. Stampanoni, M., Groso, A., Isenegger, A., Mikuljan, G., Chen, Q., Bertrand, A., Henein, S., et al. (2006). Trends in synchrotron-based tomographic imaging: The SLS experience. *SPIE Optics + Photonics*, San Diego, CA, USA, September 7.
DOI: 10.1117/12.679497. [InfoscienceLink]

50. Henein, S., Frommherz, U., Betemps, R., Kalt, H., Ellenberger, U., Flechsig, U., Raabe, J. (2006). Mechanical design of a spherical grating monochromator for the PolLux beamline at the Swiss Light Source. *9th International Conference on Synchrotron Radiation Instrumentation*, Daegu, South Korea, May 28–June 2.
DOI: 10.1063/1.2436143. [InfoscienceLink]

51. Stampanoni, M., Groso, A., Isenegger, A., Mikuljan, G., Chen, Q., Meister, D., Lange, M., Betemps, R., Henein, S., Abela, R. (2006). Tomcat: A beamline for tomographic microscopy and coherent radiology experiments. *9th International Conference on Synchrotron Radiation Instrumentation*, Daegu, South Korea, May 28–June 2. DOI: 10.1063/1.2436193. [InfoscienceLink]

52. Zelenika, S., Henein, S., Myklebust, L. (2004). Investigation of optimized notch shapes for flexural hinges. *International Workshop on Mechanical Engineering Design of Synchrotron Radiation Equipment and Instrumentation (MEDSI 2004)*, Grenoble, France, May 24–27. [InfoscienceLink]

53. Henein, S., Spanoudakis, P., Schwab, P., Giriens, L., Lisowski, L., Onillon, E., Myklebust, L. (2004). Mechanical slit mask mechanism for the James Webb Space Telescope spectrometer. *SPIE Astronomical Telescopes and Instrumentation*, Glasgow, UK, June 21–25. DOI: 10.1117/12.551106. [InfoscienceLink]

54. Henein, S., Spanoudakis, P., Droz, S., Myklebust, L., Onillon, E. (2003). Flexure pivot for aerospace mechanisms. *10th European Space Mechanisms and Tribology Symposium (ESMATS 2003)*, San Sebastián, Spain, September 24–26. [InfoscienceLink]

55. Onillon, E., Henein, S., Theurillat, P. (2003). Small scanning mirror mechanism. *IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2003)*, Kobe, Japan, July 20–24. [InfoscienceLink]

56. Henein, S., Spanoudakis, P., Schwab, P., Giriens, L., Lisowski, L., Onillon, E., Myklebust, L. (2003). Mechanical slit mask mechanism for the James Webb Space Telescope spectrometer. *10th European Space Mechanisms and Tribology Symposium (ESMATS 2003)*, San Sebastián, Spain, September 24–26. [InfoscienceLink]

57. Onillon, E., Henein, S., Theurillat, P., Krauss, J., Kjelberg, I. (2002). Interferometer scanning mirror mechanism. *2nd IFAC Conference on Mechatronic Systems*, Berkeley, CA, USA, December 9–11. DOI: 10.1016/S1474-6670(17)34042-9. [InfoscienceLink]

58. Henein, S., Kjelberg, I., Zelenika, S. (2002). Flexible bearings for high-precision mechanisms in accelerator facilities. *26th Advanced ICFA Beam Dynamics Workshop on Nanometer Size Colliding Beams*, Lausanne, Switzerland, September 2–6. [InfoscienceLink]

59. Clavel, R., Helmer, P., Bottinelli, S., Henein, S., Schmitt, C., Pérez, R., et al. (2001). Contribution aux concepts de micro- et nanofactory. *Nano et Microtechnologies*, **1**(3–4), 457–495. [PDF] [InfoscienceLink]

60. Henein, S. (2000). Conception des structures articulées à guidages flexibles de haute précision. *EPFL Doctoral Thesis*, No. 2194. [InfoscienceLink]

61. Henein, S., Bottinelli, S., Clavel, R. (2000). Structures articulées à guidages flexibles. *Journées de Microtechnique 2000*, Lausanne, Switzerland. [InfoscienceLink]

62. Helmer, P., Henein, S., Clavel, R. (2000). Cinématiques: Solutions pour micro- et nano-manipulation. *Journées de Microtechnique 2000*, Lausanne, Switzerland.

63. Henein, S., Aymon, C., Bottinelli, S., Clavel, R. (1999). Fatigue failure of thin wire electro-discharge machined flexible hinges. *SPIE Conference on Microrobotics and Microassembly*, Boston, MA, USA. DOI: 10.1117/12.357815. [InfoscienceLink]

64. Henein, S., Aymon, C., Bottinelli, S., Clavel, R. (1999). Articulated structures with flexible joints dedicated to high-precision robotics. *International Advanced Robotics Programme – Workshop on Micro Robots, Machines and Systems*, Moscow, Russia, November 25. [InfoscienceLink]

65. Henein, S., Bottinelli, S., Aymon, C., Clavel, R. (1998). Orion: Robot de haute précision à articulations flexibles. *9e Journée Jeunes Chercheurs en Robotique*, Clermont-Ferrand, France, June 11–12. [InfoscienceLink]

66. Breguet, J.-M., Bellouard, Y., Henein, S., Aymon, C., Bottinelli, S., Clavel, R. (1998). Compact, lightweight mechanisms for high-precision micro-manipulators. *8th European Space Mechanisms and Tribology Symposium (ESMATS 1998)*, Toulouse, France, September 29–October 1. [PDF] [InfoscienceLink]

67. Henein, S., Bottinelli, S., Clavel, R. (1997). Parallel spring stages with flexures of micrometric cross-sections. *SPIE Intelligent Systems and Advanced Manufacturing*, Pittsburgh, PA, USA. DOI: 10.1117/12.298039. [InfoscienceLink]

68. Henein, S., Bottinelli, S., Clavel, R., Hodac, A. (1997). Wire electro-discharge machined parallel spring stages for microrobotics. *9th International Precision Engineering Seminar & 4th International Conference on Ultraprecision in Manufacturing Engineering*, Braunschweig, Germany.

69. Breguet, J.-M., Henein, S., Mericio, R., Clavel, R. (1997). Monolithic piezoceramic flexible structures for micromanipulation. *9th International Precision Engineering Seminar & 4th International Conference on Ultraprecision in Manufacturing Engineering*, Braunschweig, Germany. [InfoscienceLink]

70. Hodac, A., Zesch, W., Siegwart, R., Henein, S., Bottinelli, S., Clavel, R. (1997). Design and control of a fast and precise macro/micro-manipulator. *International Conference on Micromechatronics for Information and Precision Equipment (MIPE '97)*, Tokyo, Japan, July 20–23. [InfoscienceLink]