

Viewpoint: Pavlovian Materials—Functional Biomimetics Inspired by Classical Conditioning

Zhang, H., Zeng, H., Priimägi, A. & Ikkala, O., 2020, In : *Advanced Materials*. 9 p., 1906619.

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

Light Robots: Bridging the Gap between Microrobotics and Photomechanics in Soft Materials

Zeng, H., Wasylczyk, P., Wiersma, D. S. & Priimägi, A., 2018, In : *Advanced Materials*. 30, 24, 1703554.

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

Shedding frequency in cavitation erosion evolution tracking

Ylönen, M., Franc, J. P., Miettinen, J., Saarenrinne, P. & Fivel, M., 1 Sep 2019, In : *International Journal of Multiphase Flow*. 118, p. 141-149 9 p.

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

Biomimetic hemo-compatible surfaces of polyurethane by grafting copolymer brushes of poly(ethylene glycol) and poly(phosphorylcholine methacrylate)

Yang, D., Feng, Y., Behl, M., Lendlein, A., Zhao, H., Khan, M. & Guo, J., 2012, *Multifunctional Polymer-Based Materials*. Vol. 1403. p. 171-176 6 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Transfer printing of metallic microstructures on adhesion-promoting hydrogel substrates

Wu, H., Sariola, V., Zhu, C., Zhao, J., Sitti, M. & Bettinger, C. J., 1 Jun 2015, In : *Advanced Materials*. 27, 22, p. 3398-3404 7 p.

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

Dimension reduction and decomposition using causal graph and qualitative analysis for aircraft concept design optimization

Wu, D., Coatanea, E. & Wang, G. G., 2017, *43rd Design Automation Conference*. The American Society of Mechanical Engineers ASME

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Employing Knowledge on Causal Relationship to Assist Multidisciplinary Design Optimization

Wu, D., Coatanea, E. & Wang, G. G., Apr 2019, In : *Journal of Mechanical Design, Transactions of the ASME*. 141, 4, 041402.

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

Operating point dependent variable switching point predictive current control for PMSM drives

Wendel, S., Karamanakos, P., Dietz, A. & Kennel, R., 1 May 2019, *PRECEDE 2019: 2019 IEEE International Symposium on Predictive Control of Electrical Drives and Power Electronics*. IEEE, p. 1-6 6 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

An Artificial Nocturnal Flower via Humidity-Gated Photoactuation in Liquid Crystal Networks

Wani, O. M., Verpaalen, R., Zeng, H., Priimägi, A. & Schenning, A. P. H. J., Jan 2019, In : *Advanced Materials*. 31, 2, 1805985.

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

Do properties of bioactive glasses exhibit mixed alkali behavior?

Wang, X., Fagerlund, S., Massera, J., Södergård, B. & Hupa, L., 2017, In : *Journal of Materials Science*. 52, 15, p. 8986–8997 12 p.

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

Co-electrospun blends of PU and PEG as potential biocompatible scaffolds for small-diameter vascular tissue engineering

Wang, H., Feng, Y., Fang, Z., Yuan, W. & Khan, M., 1 Dec 2012, In : *Materials Science and Engineering C: Materials for Biological Applications*. 32, 8, p. 2306-2315 10 p.

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

Bioactive glass ions induce efficient osteogenic differentiation of human adipose stem cells encapsulated in gellan gum and collagen type I hydrogels

Vuornos, K., Ojansivu, M., Koivisto, J. T., Häkkänen, H., Belay, B., Montonen, T., Huhtala, H., Kääriäinen, M., Hupa, L., Kellomäki, M., Hyttinen, J., Ihalainen, J. A. & Miettinen, S., 1 Jun 2019, In : *Materials Science and Engineering C*. 99, p. 905-918 14 p.

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

Erosive-abrasive wear behavior of carbide-free bainitic and boron steels compared in simulated field conditions

Vuorinen, E., Heino, V., Ojala, N., Haiko, O. & Hedayati, A., 2018, In : *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*. 232, 1, p. 3-13 11 p.

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

Low temperature afterglow from SrAl₂O₄: Eu, Dy, B containing glass

Vitola, V., Lahti, V., Bite, I., Spustaka, A., Millers, D., Lastusaari, M., Petit, L. & Smits, K., 2020, In : *Scripta Materialia*. 190, p. 86-90 5 p.

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

Effects of adiabatic heating estimated from tensile tests with continuous heating

Vazquez Fernandez, N., Isakov, M., Hokka, M. & Kuokkala, V. T., 2018, *Dynamic Behavior of Materials - Proceedings of the 2017 Annual Conference on Experimental and Applied Mechanics*. Springer New York LLC, Vol. 1. p. 1-7 7 p. (Conference Proceedings of the Society for Experimental Mechanics).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Impact wear and mechanical behavior of steels at subzero temperatures

Valtonen, K., Ratia, V., Ramakrishnan, K. R., Apostol, M., Terva, J. & Kuokkala, V-T., 2019, In : *Tribology International*. 129, p. 476-493 18 p.

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

Conjugated Heat Transfer Simulation of a Fin-and-Tube Heat Exchanger

Välikangas, T. & Karvinen, R., 2018, In : *Heat Transfer Engineering*. 39, 13-14, p. 1192-1200 9 p.

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

Fin-and-tube heat exchanger enhancement with a combined herringbone and vortex generator design

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

Deposition of dry particles on a fin-and-tube heat exchanger by a coupled soft-sphere DEM and CFD

Välikangas, T., Hærvig, J., Kuuluvainen, H., Dal Maso, M., Peltonen, P. & Vuorinen, V., 2019, In : *International Journal of Heat and Mass Transfer*. 19 p., 119046.

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

Effect of pre-treatments on barrier properties of layers applied by atomic layer deposition onto polymer-coated substrates

Vähä-Nissi, M., Hirvikorpi, T., Sievänen, J., Salo, E., Harlin, A., Johansson, P. & Kuusipalo, J., 2011, *13th European PLACE Conference 2011*. Vol. 1. p. 447 1 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

High performance natural rubber composites with a hierarchical reinforcement structure of carbon nanotube modified natural fibers

Tzounis, L., Debnath, S., Rooj, S., Fischer, D., Mäder, E., Das, A., Stamm, M. & Heinrich, G., 2014, In : *Materials and Design*. 58, p. 1-11 11 p.

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

Optimised selection of new protective coatings for biofuel boiler applications

Tuurma, S., Varis, T., Penttilä, K., Ruusuvoori, K., Holmström, S. & Yli-Olli, S., Jul 2011, In : *Materials and Corrosion-Werkstoffe und Korrosion*. 62, 7, p. 642-649 8 p.

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

Elevated and cryogenic temperature micropillar compression of magnesium–niobium multilayer films

Thomas, K., Mohanty, G., Wehrs, J., Taylor, A. A., Pathak, S., Casari, D., Schwiedrzik, J., Mara, N., Spolenak, R. & Michler, J., 15 Aug 2019, In : *Journal of Materials Science*. 54, 15, p. 10884-10901 18 p.

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

Real-time and Robust Collaborative Robot Motion Control with Microsoft Kinect © v2

Teke, B., Lanz, M., Kämäräinen, J-K. & Hietanen, A., 27 Aug 2018, *2018 14th IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications, MESA 2018*. IEEE, 6 p. 8449156

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Superhydrophobic Coatings on Cellulose-Based Materials: Fabrication, Properties, and Applications

Teisala, H., Tuominen, M. & Kuusipalo, J., 1 Feb 2014, In : *Advanced Materials Interfaces*. 1, 1, p. 1-20 20 p., 1300026.

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

Nanoparticle deposition on packaging materials by the liquid flame spray

Teisala, H., Tuominen, M., Aromaa, M., Mäkelä, J. M., Stepien, M., Saarinen, J. J., Toivakka, M. & Kuusipalo, J., 2011, *13th European PLACE Conference 2011*. Vol. 1. 2 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Ultrafast Processing of Hierarchical Nanotexture for a Transparent Superamphiphobic Coating with Extremely Low Roll-Off Angle and High Impalement Pressure

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

On the threshold based neuronal spike detection, and an objective criterion for setting the threshold

Tanskanen, J. M. A., Kapucu, F. E. & Hyttinen, J. A. K., 1 Jul 2015, *International IEEE/EMBS Conference on Neural Engineering, NER*. IEEE COMPUTER SOCIETY PRESS, p. 1016-1019 4 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Optimizing ammonium adsorption on natural zeolite for wastewaters with high loads of ammonium and solids

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

Fluorine losses in Er³⁺ oxyfluoride phosphate glasses and glass-ceramics

Szczodra, A., Mardoukhi, A., Hokka, M., Boetti, N. G. & Petit, L., 15 Aug 2019, In : *Journal of Alloys and Compounds*. 797, p. 797-803 7 p.

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

Analysing traffic fluency from bus data

Syrjärinne, P., Nummenmaa, J., Thanisch, P., Kerminen, R. & Hakulinen, E., 1 Aug 2015, In : *IET Intelligent Transport Systems*. 9, 6, p. 566-572 7 p.

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

Solvothermal synthesis derived Co-Ga codoped ZnO diluted magnetic degenerated semiconductor nanocrystals

Šutka, A., Käämbre, T., Joost, U., Kooser, K., Kook, M., Duarte, R. F., Kisand, V., Maiorov, M., Döbelin, N. & Smits, K., 30 Sep 2018, In : *Journal of Alloys and Compounds*. 763, p. 164-172 9 p.

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

Effect of air gap on the adhesion of PET layer on cardboard substrate in extrusion coating

Suokas, E., 1 Jan 2017, *16th TAPPI European PLACE Conference 2017*. TAPPI Press, p. 529-544 16 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

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Suokas, E., 2019, *17th Biennial TAPPI European PLACE Conference 2019*. TAPPI Press, p. 89-98 10 p.

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Recurrence network analysis of wide band oscillations of local field potentials from the primary motor cortex reveals rich dynamics.

Subramaniam, N. P., Hyttinen, J., Hatsopoulos, N. G. & Takahashi, K., 1 Jul 2015, *International IEEE/EMBS Conference on Neural Engineering, NER*. IEEE COMPUTER SOCIETY PRESS, p. 960-963 4 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Highly conducting polychloroprene composites based on multi-walled carbon nanotubes and 1-butyl 3-methyl imidazolium bis(trifluoromethylsulphonyl)imide

Subramaniam, K., Das, A. & Heinrich, G., Jul 2012, In : *KGK: KAUTSCHUK GUMMI KUNSTSTOFFE*. 65, 7-8, p. 44-46 3 p.

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Stoykova, E., Berberova, N., Kim, Y., Nazarova, D., Ivanov, B., Gotchev, A., Hong, J. & Kang, H., 1 Jun 2017, In : *Optics and Lasers in Engineering*. 93, p. 55-65 11 p.

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

Digital image correlation study of the deformation and functioning of the human heart during open-heart surgery

Soltani, A., Curtze, S., Lahti, J., Järvelä, K., Laurikka, J., Hokka, M. & Kuokkala, V. T., 2018, *Mechanics of Biological Systems, Materials and other topics in Experimental and Applied Mechanics - Proceedings of the 2017 Annual Conference on Experimental and Applied Mechanics*. Springer New York LLC, Vol. 4. p. 19-27 9 p. (Conference Proceedings of the Society for Experimental Mechanics).

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

Introducing Multi-Convexity in Path Constrained Trajectory Optimization for Mobile Manipulators

Singh, A. K., Ahonen, A., Ghabcheloo, R. & Mueller, A., 2020, *European Control Conference 2020, ECC 2020*. IEEE, p. 1178-1185 8 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Hyperspectral phase imaging based on denoising in complex-valued eigensubspace

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

Towards dependable automation

Seppälä, J. & Salmenperä, M., 2015, *Cyber Security: Analytics, Technology and Automation: Part IV*. Springer International Publishing, p. 229-249 21 p. (Intelligent Systems, Control and Automation: Science and Engineering; vol. 78).

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Consideration of energy consumption, energy costs, and space occupancy in Finnish daycare centres and school buildings

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

Impact of building usage and occupancy on energy consumption in Finnish daycare and school buildings

Sekki, T., Airaksinen, M. & Saari, A., 18 Aug 2015, In : *Energy and Buildings*. 105, p. 247-257 11 p.

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

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

Effect of energy measures on the values of energy efficiency indicators in Finnish daycare and school buildings

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

Synchronous Full-Field Strain and Temperature Measurement in Tensile Tests at Low, Intermediate and High Strain Rates

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

An exploratory study on strengthening and thermal stability of magnetron sputtered W nanoparticles at the interface of Cu/Ni multilayer films

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

Tailoring Second-Harmonic Emission from (111)-GaAs Nanoantennas

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Mechanically Switchable Elastomeric Microfibrillar Adhesive Surfaces for Transfer Printing

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Barkhausen Noise Probes and Modelling: A Review

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Research output: Contribution to journal > Review Article > Scientific > peer-review

Assessing population vulnerability towards summer energy poverty: Case studies of Madrid and London

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

Enhanced resonant nonlinear absorption and optical limiting in Er³⁺ ions doped multicomponent tellurite glasses

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

An origami inspired reconfigurable spiral antenna

Sainting, C. D., Cook, B. S. & Tentzeris, M. M., 2014, *38th Mechanisms and Robotics Conference*. The American Society of Mechanical Engineers ASME, Vol. 5B.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Assessment of pitting corrosion in bare and passivated (wet scCO₂-induced patination and chemical passivation) hot-dip galvanized steel samples with SVET, FTIR, and SEM (EDS)

Saarimaa, V., Fuertes, N., Persson, D., Zavalis, T., Kaleva, A., Nikkanen, J-P., Levänen, E. & Heydari, G., 2020, In : *Materials and Corrosion*. 10 p.

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

Transparent microelectrode arrays fabricated by ion beam assisted deposition for neuronal cell in vitro recordings
Ryynänen, T., Mzezewa, R., Meriläinen, E., Hyvärinen, T., Lekkala, J., Narkilahti, S. & Kallio, P., 1 May 2020, In : *Micromachines*. 11, 5, 497.

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

Direct model predictive power control of a series-connected modular rectifier

Rossi, M., Liegmann, E., Karamanakos, P., Castelli-Dezza, F. & Kennel, R., 1 May 2019, *PRECEDE 2019: 2019 IEEE International Symposium on Predictive Control of Electrical Drives and Power Electronics*. IEEE, p. 1-6 6 p.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Materials for electronics by thermal spraying

Ronkainen, H., Kanerva, U., Varis, T., Ruusuvuori, K., Turunen, E., Peräntie, J., Putaala, J., Juuti, J. & Jantunen, H., 2013, *Physical and Numerical Simulation of Materials Processing VII*. Vol. 762. p. 451-456 6 p. (Materials Science Forum; vol. 762).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Persistent luminescent borosilicate glasses using direct particles doping method

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

The role of niobium in improving toughness and corrosion resistance of high speed steel laser hardfacings

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

Multiresonant High-Q Plasmonic Metasurfaces

Reshef, O., Saad-Bin-Alam, M., Huttunen, M. J., Carlow, G., Sullivan, B. T., Ménard, J. M., Dolgaleva, K. & Boyd, R. W., 11 Sep 2019, In : *Nano Letters*. 19, 9, p. 6429-6434 6 p.

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

Effect of Multiple Impacts on the Deformation of Wear-Resistant Steels

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

Effect of rotor pole-shoe construction on losses of inverter-fed synchronous motors

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Fabrication of a sub-10 nm silicon nanowire based ethanol sensor using block copolymer lithography

Rasappa, S., Borah, D., Faulkner, C. C., Lutz, T., Shaw, M. T., Holmes, J. D. & Morris, M. A., 15 Feb 2013, In : *Nanotechnology*. 24, 6, 065503.

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

A Reduced-Order Two-Degree-of-Freedom Composite Nonlinear Feedback Control for a Rotary DC Servo Motor

Pyrhönen, V-P., Koivisto, H. & Vilkkö, M., 12 Dec 2017, *Proceedings of the 56th IEEE Conference on Decision and Control*. Melbourne, Australia, p. 2065-2071 7 p.

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Measurements and Modeling of Frost Depth in Railway Tracks

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From Responsive Molecules to Interactive Materials

Priimägi, A. (ed.) & Hecht, S. (ed.), 2020, In : *Advanced Materials*. 32, 20, 3 p., 2000215.
Research output: Contribution to journal › Editorial › Scientific

Special Issue: From Responsive Materials to Interactive Materials

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Research output: Contribution to journal › Special issue › Scientific › peer-review

Potential of renewable fuel to reduce diesel exhaust particle emissions

Pirjola, L., Kuuluvainen, H., Timonen, H., Saarikoski, S., Teinilä, K., Salo, L., Datta, A., Simonen, P., Karjalainen, P., Kulmala, K. & Rönkkö, T., 15 Nov 2019, In : *Applied Energy*. 254, 113636.
Research output: Contribution to journal › Article › Scientific › peer-review

High-order lattice-Boltzmann

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Vehicle type detection and passenger satisfaction analysis using smartphone sensors and digital surveys

Perttula, A., Nguyen, N., Collin, J. & Jokinen, J-P., 1 Oct 2019, In : *IET Intelligent Transport Systems*. 13, 10, p. 1499-1506 8 p.
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Kinetics and thermochemistry of the reaction of 3-methylpropargyl radical with molecular oxygen

Pekkanen, T. T., Timonen, R. S., Lendvay, G., Rissanen, M. P. & Eskola, A. J., 1 Jan 2019, In : *PROCEEDINGS OF THE COMBUSTION INSTITUTE*. 37, 1, p. 299-306 8 p.
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Asymptotics and approximation of large systems of ordinary differential equations

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Comparative environmental impacts of additive and subtractive manufacturing technologies

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Detection beyond Debye's length with an electrolyte-gated organic field-effect transistor

Palazzo, G., De Tullio, D., Magliulo, M., Mallardi, A., Intranuovo, F., Mulla, M. Y., Favia, P., Vikholm-Lundin, I. & Torsi, L., 2015, In : *Advanced Materials*. 27, 5, p. 911-916 6 p.
Research output: Contribution to journal › Article › Scientific › peer-review

Locomotion of light-driven soft microrobots through a hydrogel via local melting

Palagi, S., Mark, A. G., Melde, K., Qiu, T., Zeng, H., Parmeggiani, C., Martella, D., Wiersma, D. S. & Fischer, P., 3 Aug 2017, *International Conference on Manipulation, Automation and Robotics at Small Scales, MARSS 2017 - Proceedings*. IEEE
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Probabilistic approach to physical object disentangling

Pajarinen, J., Arenz, O., Peters, J. & Neumann, G., 2020, In : *IEEE Robotics and Automation Letters*. 5, 4, p. 5510-5517 8 p.
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Enhanced multiaxial fatigue criterion that considers stress gradient effects

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

Investigating the kinetics and biofuel properties of *Alstonia congensis* and *Ceiba pentandra* via torrefaction

Oluoti, K., Doddapaneni, T. R. K. C. & Richards, T., 1 May 2018, In : *Energy*. 150, p. 134-141 8 p.

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

CFD modeling the diffusional losses of nanocluster-sized particles and condensing vapors in 90° bends of circular tubes

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The formation and characterization of fretting-induced degradation layers using quenched and tempered steel

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Evaluating retrofit options in a historical city center: Relevance of bio-based insulation and the need to consider complex urban form in decision-making

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Wear and impact behaviour of High Velocity Air-Fuel sprayed Fe-Cr-Ni-B-C alloy coatings

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

Vapor Phase Fabrication of Nanoheterostructures Based on ZnO for Photoelectrochemical Water Splitting

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

Moving Web and Dynamic Problem of Aerothermoelastic Vibrations and Instability

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Nonlinear model predictive energy management of hydrostatic drive transmissions

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

Democratizing composites manufacturing -inexpensive tooling empowers new players

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

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

Enablers and barriers of smart data-based asset management services in industrial business networks

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Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

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