

LISTE COMPLETE DES PUBLICATIONS

Ouvrages et Chapitres d'ouvrage

O1 "Micro- and NanoElectroMechanical Systems for Biosensing" by **L. Nicu** and T. Leïchlé, ed. Wiley-ISTE, Feb. 2014.

CO1 "Nanoelectromechanical systems" by **L. Nicu**, V. Auzelyte, L.G. Villanueva, H. S. J. van der Zant and J. Brugger, in **Resonant MEMS** (ed. I. Dufour, O. Brand, S. Heinrich and F. Josse) Wiley-VCH, Apr. 2015.

Revue internationale

1999

R1- Piezoelectric properties of PZT films for microcantilever.
E. Cattan, T. Haccart, G. Vélú, D. Remiens, C. Bergaud, **L. Nicu**
Sensors and Actuators, 74, 60-64, (1999).

R2- Experimental and theoretical investigations on non-linear resonances of composite buckled microbridges.
L. Nicu, C. Bergaud
Journal of Applied Physics, 86, 5835-5840, (1999).

R3- Multimode air damping analysis of composite cantilever beams.
C. Bergaud, **L. Nicu**, A. Martinez
Japanese Journal of Applied Physics, 38, 6521-6525, (1999).

R4- Energy study in buckled micromachined beams for thin film stress measurement applied to SiO₂.
L. Nicu, P. Temple-Boyer, C. Bergaud, E. Scheid, A. Martinez
Journal of Micromechanics and Microengineering, 9, 414-421, (1999).

2000

R5- A metallic microcantilever probes array incorporated in an atomic force microscope.
T. Ondarçuhu, **L. Nicu**, S. Cholet, C. Bergaud, S. Gerdes, C. Joachim
Review of Scientific Instruments, 71, 2087-2093, (2000).

R6- Viscosity measurements based on experimental investigations of composite cantilever beam eigenfrequencies in viscous media.
C. Bergaud, **L. Nicu**
Review of Scientific Instruments, 71, 2487-2491, (2000).

R7- Micro-optomechanical sensor for optical connection in the near field.
B. Bélier, A. Santoso, J. Bonnafé, **L. Nicu**, P. Temple-Boyer, C. Bergaud
Applied Physics Letters, 77, 1768-1770, (2000).

(2001 – 2003 : Ingénieur R&D chez Thales Avionics Valence)

2004

R8- Detection of Gold Colloid Adsorption at a Solid/Liquid Interface Using Micromachined Piezoelectric Resonators.

Matthieu GUIARDEL, **Liviu NICU**, Daisuke SAYA, Yannick TAURAN, Eric CATTAN, Denis REMIENS and Christian BERGAUD

Japanese Journal of Applied Physics Vol. 43, No. 1A/B, pp. L 111–L 114, (2004).

R9- Modeling of a tuning fork biosensor based on the excitation of one particular resonance mode.

L. Nicu and C. Bergaud.

Journal of Micromechanics and Microengineering **14**, pp 1–10, (2004)

R10- Mechanical effect of gold nanoparticles labeling used for biochemical sensor applications: a multimode analysis by means of SiNx micromechanical cantilever and bridge mass detector

D. Saya, **L. Nicu**, M. Guirardel, Y. Tauran, C. Bergaud

Review of Scientific Instruments, Vol. 75, Iss. 9, pp. 3010-3015 (2004)

2005

R11- Resonating piezoelectric membranes for microelectromechanically-based bioassay: detection of streptavidin-gold nanoparticles interaction with biotinylated DNA

L. Nicu, M. Guirardel, F. Chambosse, P. Rougerie, S. Hinh, E. Trevisiol, J.-M. François, J.-P. Majoral, A.-M. Caminade, E. Cattan, C. Bergaud

Sensors and Actuators Chemicals B, Vol. 110, Iss. 1, pp. 125-136 (2005).

R12- Nanostructuring surfaces with conjugated silica colloids deposited using silicon-based microcantilevers
T. Leïchlé, M. Manso Silvan, P. Belaubre, A. Valsesia, G. Ceccone, F. Rossi, D. Saya, J.-B. Pourciel, **L. Nicu**, and C. Bergaud

Nanotechnology, Vol. 16, pp.525-531 (2005)

R13- Digital self-calibration method for MEMS sensors

J. Juillard, E. Colinet, C. Bergaud and **L. Nicu**

IEEE Transactions on Instrumentation and Measurement, Vol. 54(4), pp. 1438-1443 (2005).

R14- Free-standing protein films for ultrasensitive dynamic mode detection of cations binding

Daisuke Saya, Anthony W. Coleman, Adina N. Lazar, Christian Bergaud, and **Liviu Nicu** *Applied Physics Letters*, Vol. 87, 103901 (2005).

2006

R15- Copper Electrodeposition Localized in Picoliter Droplets using Microcantilevers Arrays

T. Leïchlé, E. Descamps, B. Corso, P. Mailley, T. Livache, C. Bergaud and **L. Nicu**, *Applied Physics Letters*, Vol. 88, 254108 (2006)

R16- Liquid Loading of Silicon-based Cantilevers using Electrowetting Actuation for Microspotting Applications

Thierry Leïchlé, Daisuke Saya, Jean-Bernard Pourciel, Fabrice Mathieu, **Liviu Nicu** and Christian Bergaud, *Sensors and Actuators A – Physical* Vol.132, pp.590-596 (2006)

R17- Determination of the d_{31} piezoelectric coefficient of $\text{PbZr}_x\text{Ti}_{1-x}\text{O}_3$ thin films using multilayer buckled micromembranes

C. Ayela, E. Cattan, C. Soyer, C. Bergaud and **L. Nicu**, *Journal of Applied Physics* Vol.100, 054908 (2006)

R18- Deposition of Nano-bead Hexagonal Crystals using Silicon Micro-Cantilevers
Andrea Valsesia, Thierry Leïchlé, Lise-Marie Lacroix, **Liviu Nicu**, Frederic Bretagnol, Pascal Colpo, Francois Rossi and Christian Bergaud, *Small* Vol.2, pp.1444-1447 (2006)

R19- A Closed-loop MEMS-based Spotter Integrating Position Sensors with Nanometric Precision for the Control of Droplets Uniformity
Thierry Leïchlé, Daisuke Saya, Jean-Bernard Pourciel, Fabrice Mathieu, Christian Bergaud, and **Liviu Nicu** *IEEE Review on Advances in Micro, Nano and Molecular Systems* 2006, 1, 337-339

2007

R20- Collective fabrication of in-plane silicon nanotip for parallel femtoliter droplet deposition
D Saya, T Leïchlé, J B Pourciel, C Bergaud and **L Nicu**, *Journal of Micromechanics and Microengineering*, Vol.17, pp. N1-N5 (2007)

R21- Micromachined piezoelectric membranes with high nominal quality factors in newtonian liquid media: a Lamb's model validation at the microscale
Cédric Ayela and **Liviu Nicu**, *Sensors and ActuatorsB, Chemicals* Vol.123, pp. 860-868 (2007)

R22- Dynamic Spreading of a Liquid Finger Driven by Electrowetting: Theory and Experimental Validation
Laurent Tanguy, Thierry Leïchlé and **Liviu Nicu**, *Journal of Applied Physics* Vol.101, 044907 (2007)

R23- Fabrication of oligonucleotide chips using parallel cantilever-based electrochemical deposition in picoliter volumes
Emeline Descamps, Thierry Leïchlé, Bruno Corso, Pascal Mailley, **Liviu Nicu**, Thierry Livache and Christian Bergaud, *Advanced Materials*, Vol.19, p.1816 (2007)

R24- Real time interaction studies monitored by SPR and QCM: antibody detection with antigenic peptides immobilized on gold surfaces; suitable model for detecting *autoantibody* in human serum
Cedric Ayela, Françoise Roquet, Lionel Valera, Claude Granier, **Liviu Nicu** and Martine Pugnère, *Biosensors, Bioelectronics* Vol.22, pp.3113-3119 (2007)

R25- Parallel detection of Si-based microcantilevers resonant frequencies using piezoresistive signals downmixing scheme
Fabrice Mathieu, Daisuke Saya, Christian Bergaud and **Liviu Nicu**, *IEEE of Sensors* Vol.7, pp.172-178 (2007)

R26- Direct patterning of molecularly-imprinted microdot arrays for sensors and biochips
Fanny Vandeveldé, Thierry Leichle, Cédric Ayela, Christian Bergaud, **Liviu Nicu**, and Karsten Haupt, *Langmuir* Vol. 23, pp.6490-6493 (2007)

R27- Combining resonant piezoelectric micromembranes with molecularly imprinted polymers
Cédric Ayela, Fanny Vandeveldé, Denis Lagrange, Karsten Haupt and **Liviu Nicu**, *Angew. Chem. Int. Ed.* Vol. 46, pp. 9271-9274 (2007)

R28- Electrowetting-assisted Drop Deposition for the Control of the Patterned Area and the Delivered Volume
T. Leïchlé, L. Tanguy, and **L. Nicu**, *Applied Physics Letters* Vol. 91, 224102 (2007)

2008

- R29-** Spot-in-spot interaction of biomolecules successively deposited using a microcantilever-based spotter
Nathalie Berthet, Thierry Leïchlé, Jean-Bernard Pourciel, Cristina Martin, Joan Bausells, Emilio Lora-Tamayo, Francesc Perez-Murano, Jean M. François, Emmanuelle Trévisiol and **Liviu Nicu**, *Biomedical Microdevices* 10, 479 (2008)
- R30-** FEM assisted calibration of MEMS-based dispensing system with integrated piezoresistive force sensors
Maryna Lishchynska, Thierry Leïchlé, **Liviu Nicu**, *Journal of Micromechanics and Microengineering* 18, 015010 (2008)
- R31-** Electronic scheme for multiplexed dynamic behavior excitation and detection of piezoelectric silicon-based micromembranes
C. Ayela, T. Alava, D. Lagrange, D. Remiens, C. Soyer, T. Ondarçuhu, A. Greve, **L. Nicu**, *IEEE of Sensors Journal* 8, 210 (2007)
- R32-** Contact force control of piezoresistive cantilevers with in-plane nanotips for femtoliter droplet deposition
Daisuke Saya, Thierry Leïchlé, Jean-Bernard Pourciel, Fabrice Mathieu, Christian Bergaud, and **Liviu Nicu**, *Microelectronics Engineering* 85, 1341 (2008)
- R33-** Rheological behaviour probed by vibrating microcantilevers
Naser Belmiloud, Isabelle Dufour, Annie Colin and **Liviu Nicu**, *Applied Physics Letters* Vol. 92, 041907 (2008)
- R34-** Novel methods to pattern polymers for microfluidic applications
C. Martin, A. Llobera, J. Bausells, G. Villanueva, Anja Voigt, Vahid Fakhfour, Thierry Leïchlé, G. Gruetzner, **L. Nicu**, J. Brugger and F. Pérez-Murano, *Microelectronics Engineering* 85, 972 (2008)
- R35-** Piezoresistive sensitivity of MEMS-based liquid dispensing system with built-in force sensors
Maryna Lishchynska, Thierry Leïchlé, **Liviu Nicu**, *Microelectronics Engineering* 85, 1321 (2008)
- R36-** Biosensors and tools for surface functionalization from the macro to the nanoscale: the way forward
(Review Article)
Liviu NICU and Thierry Leïchlé, *Journal of Applied Physics* 104, 111101 (2008)
- R37-** A microcantilever-based picoliter droplet dispenser with integrated force sensors and electroassisted deposition means
T. Leïchlé, M. Lishchynska, F. Mathieu, D. Saya. J-B. Pourciel, **L. Nicu**, *IEEE Journal of Microelectromechanical Systems* 17, 1239 (2008)

2009

- R38-** Antibody Surface Addressing for Individual Non-Adherent Living Cell Capture and Organization
Yoann Roupioz, Nathalie Berthet-Durore, Thierry Leïchlé, Jean-Bernard Pourciel, Fabrice Mathieu, Pascal Mailley, Thierry Livache and **Liviu Nicu**, *Small* 5, 1493 (2009)
- R39-** Spectral collocation-based numerical simulations of cylindrical AC-electroosmotic flows for bioconcentration purposes and experimental validations
L. Tanguy, S. Salomon and **L. Nicu**, *Applied Physics Letters* 94, 034101 (2009)
- R40-** Parallel acoustic detection of biological warfare agents surrogates by means of piezoelectric immunochips

T. Alava, N. Berthet-Duroure, C. Ayela, M. Pugnère, Y. Morel, P. Rameil, E. Trévisiol, **L. Nicu**, *Sens. Act. Chemicals B* 138, 532 (2009)

R41- Controlled localisation and enhanced gathering of particles on microfabricated concentrators assisted by AC-electroosmosis
Laurent Tanguy and **Liviu Nicu**, *Journal of Applied Physics*, 105, 102043 (2009)

R42- A 0.3-mW/Ch 1.25 V piezo-resistance digital ROIC for Liquid Dispensing MEMS, Roger Dura, Fabrice Mathieu, **Liviu Nicu**, Francesc Perez-Murano, Francesc Serra-Graells, *IEEE Transactions on Circuits and Systems –I: Regular Papers*, 56, 957 (2009)

2010

R43- Silicon-based micromembranes with piezoelectric actuation and piezoresistive detection for sensing purposes in liquid media
Thomas Alava, Fabrice Mathieu, Laurent Mazenq, Caroline Soyer, Denis Remiens, **Liviu Nicu**, *Journal of Micromechanics and Microengineering* 20, 075014 (2010)

R44- Piezoelectric-actuated, piezoresistive-sensed circular micromembranes for label-free biosensing applications Thomas Alava, Fabrice Mathieu, Pascal Rameil, Yannick Morel, Caroline Soyer, Denis Remiens, **Liviu Nicu**, *Applied Physics Letters* 97, 093703 (2010)

2011

R45- Effect of non-ideal clamping shape on the resonance frequencies of silicon nanocantilevers
S. Guillon, D. Saya, L. Mazenq, S. Perisanu, P. Vincent, A. Lazarus, O. Thomas, and **L. Nicu**, *Nanotechnology* 22, 245501 (2011).

R46- A dielectrophoretic continuous flow sorter using integrated microelectrodes coupled to a channel constriction
S. Salomon, T. Leichle, and **L. Nicu**, *Electrophoresis*, 32, 1508, (2011).

2012

R47- The Microcantilever: A versatile tool for measuring the rheological properties of complex fluids
I. Dufour, A. Maali, Y. Amarouchene, C. Ayela, B. Caillard, A. Darwiche, M. Guirardel, H. Kellay, E. Lemaire, F. Mathieu, C. Pellet, D. Saya, M. Youssry, **L. Nicu**, and A. Colin, *Journal of Sensors*, 2012, 719898 (2012).

R48- Three-dimensional closed microfluidic channel fabrication by stepper projection single step lithography: the diabolo effect
F. Larramendy, L. Mazenq, P. Temple-Boyer, **L. Nicu**, *Lab On A Chip*, 12, 387 (2012)

R49- Biological functionalization of massively parallel arrays of nanocantilevers using microcontact printing
S. Guillon, S. Salomon, F. Seichepine, D. Dezest, F. Mathieu, A. Bouchier, L. Mazenq, C. Thibault, C. Vieu, T. Leichlé, **L. Nicu** *Sens. Act. Chem. B*, 161, 1135 (2012)

R50- A combination of capillary and dielectrophoresis-driven assembly methods for wafer scale integration of carbon-nanotube-based nanocarpet F. Seichepine, S. Salomon, M. Collet, S. Guillon, **L. Nicu**, G. Larrieu, E. Flahaut, C. Vieu, *Nanotechnology*, 23, 095303 (2012).

- R51-** Wafer scale interdigitated nanoelectrode devices functionalized using a MEMS-based deposition system
A. Martinez-Rivas, F. Carcenac, D. Saya, C. Severac, **L. Nicu**, C. Vieu, *Nanotechnology*, 23, 105302 (2012).
- R52-** Lead-zirconate titanate nanoscale patterning by ultraviolet-based lithography lift-off technique for nanoelectromechanical system applications
S. Guillon, D. Saya, L. Mazonq, J. Costecalde, D. Remiens, C. Soyer, **L. Nicu**, *IEEE Trans. Ultrasonics Ferroelec. Freq. Control* 59, 1955-61 (2012).
- R53-** Arrays of nanoelectromechanical biosensors functionalized by microcontact printing
S. Salomon, T. Leïchlé, D. Dezest, F. Seichepine, S. Guillon, C. Thibault, C. Vieu, **L. Nicu**, *Nanotechnology* 23, 495501 (2012)

2013

- R54-** Parallel detection in liquid phase of N-channel MOSFET/ChemFET microdevices using saturation mode
F. Larramendy, F. Mathieu, S. Charlot, **L. Nicu**, P. Temple-Boyer, *Sens. Act. Chem. B* 176, 379-385 (2013)
- R55-** Piezoelectric microelectromechanical resonators: geometry-dependent actuation and sensing circuitry
F. Mathieu, F. Larramendy, D. Dezest, C. Huang, G. Lavallee, S. Miller, C. M. Eichfeld, W. Mansfield, S. Trolrier-McKinstry, **L. Nicu**, *Microelectronics Eng.* 111, 261-261 (2013)
- R56-** Efficient parametric amplification in micro-resonators with integrated piezoelectric actuation and sensing capabilities
O. Thomas, F. Mathieu, W. Mansfield, C. Huang, S. Trolrier-McKinstry, **L. Nicu**, *Appl. Phys. Lett.* 102, 163504 (2013)
- R57-** Nanodevices and Nanobiotechnologies 2012 (ed.)
Y. Chen and **L. Nicu**, *Microelectronics Eng.* 111, 68-76, (2013)
- R58-** Functionalization of optical nanotip arrays with an electrochemical microcantilever for multiplexed DNA detection
E. Descamps, N. Duroure, F. Deiss, T. Leïchlé, P. Mailley, A. Aït-Ikhlef, T. Livache, **L. Nicu**, N. Sojic, *LabOnChip* 13, 2956-2962 (2013)

2014

- R59-** As-deposited epitaxial BaTiO₃ thin films on YSZ-buffered silicon substrates and silicon nanocantilevers,
H. Colder, B. Domengès, C. Jorel, P. Marie, M. Boisserie, S. Guillon, **L. Nicu**, A. Galdi and L. Méchin, *J. Appl. Phys.* 115, 053506 (2014)
- R60-** MISFET-based biosensing interface for neurons guided growth and neuronal electrical activities recording,
F. Larramendy, A. Bendali, C. Blatché, F. Mathieu, S. Picaud, P. Temple-Boyer, **L. Nicu**, *Sensors and Actuators, B-Chemical* 203, 375-381 (2014)
- R61-** Fabrication of nanoplate resonating structures via micro-masonry,
A. Bhaswara, H. Keum, S. Rhee, B. Legrand, F. Mathieu, S. Kim, L. Nicu, T. Leïchlé, *J. Micromech. Microeng.* 24, 115012 (2014)

2015

- R62-** Large-scale assembly of single nanowires through capillary-assisted dielectrophoresis,
M. Collet, S. Salomon, N. Klein, F. Seichepine, C. Vieu, L. Nicu, G. Larrieu, *Advanced Materials* 27, 1268-1273, 2015

R63- Wafer-scale fabricated of self-actuated piezoelectric nanoelectromechanical resonators based on lead zirconate titanate (PZT), D. Dezest, O. Thomas, F. Mathieu, L. Mazonq, C. Soyer, J. Costecalde, D. Remiens, J. F. Deu, L. Nicu, *J. Micromech. Microeng.* 25, 035002, 2015

R64- Geometry optimization of uncoated silicon microcantilever-based gas density sensors, M. T. Boudijet, J. Bertrand, F. Mathieu, L. Nicu, L. Mazonq, T. Leïchlé, M. Heinrich, C. Pellet, I. Dufour, *Sens. Act. Chem. B* 208, 600-607, 2015

2016

R65- Switchable molecule-based materials for micro- and nanoscale actuating applications: Achievements and prospects, D. Manrique-Juarez, S. Rat, L. Salmon, G. Molnar, C. M. Quintero, L. Nicu, H. J. Shepherd, A. Bousseksou, *Coord. Chem. Rev.* 308, 395-408, 2016

R66- Microelectromechanical systems integrating molecular spin crossover actuators, D. M. Manrique-Juarez, S. Rat, F. Mathieu, D. Saya, I. Seguy, T. Leïchlé, L. Nicu, L. Salmon, G. Molnar, A. Bousseksou, *Appl. Phys. Lett.* 109, 061903, 2016

R67- Current switching coupled to molecular spin-states in large-area junctions, C. Lefter, S. Rat, J. Sánchez Costa, M. D. Manrique-Juárez, C. M. Quintero, L. Salmon, I. Séguy, T. Leichle, L. Nicu, P. Demont, A. Rotaru, G. Molnár, A. Bousseksou, *Adv. Mater.* 28, 7508-7514, 2016

R68- A simple fabrication process based on micro-masonry for the realization of nanoplate resonators with integrated actuation and detection schemes, Liviu Nicu, Thierry Leichle, Seok Kim, Bernard Legrand, Fabrice Mathieu, Hohyun Keum, Adhitya Bhaswara, *Frontiers in Mechanical Engineering* 2, 1 (2016)

2017

R69- Additively patterned ferroelectric thin films with vertical sidewalls, A. Welsh, D. Dezest, L. Nicu and S. Trolrier-McKinstry, *J. Am. Cer. Soc.* 100, 848 (2017)

R70- A bistable microelectromechanical system actuated by spin-crossover molecules, D. M. Manrique-Juarez, F. Mathieu, V. Shalabaeva, J. Cacheux, S. Rat, T. Leïchlé, L. Nicu, L. Salmon, G. Molnar, A. Bousseksou, *Angew. Chem. Int. Ed.* 129, 8186 (2017)

2018

R71- Micromachining-Compatible, Facile Fabrication of Polymer-Nanocomposite Spin Crossover Actuators, M. D. Manrique-Juárez, F. Mathieu, A. Laborde, S. Rat, V. Shalabaeva, P. Demont, O. Thomas, L. Salmon, T. Leichle, L. Nicu, G. Molnár and A. Bousseksou, *Adv. Func. Mater.* 28(29), 1801970 (2018)

R72- An innovative self-aligned functionalization approach to order neuronal networks at the single cell level, A. Casanova, C. Blatché, C. Ferre, H. Martin, D. Gonzalez-Dunia, L. Nicu, G. Larrieu, *Langmuir* 34(22), 6612 (2018)

R73- Complete set of elastic moduli of a spin-crossover solid: spin-state dependence and mechanical actuation, M. Mikolasek, M. D. Manrique-Juarez, H. J. Shepherd, K. Ridier, S. Rat, V. Shalabaeva, A. C. Bas, I. E. Collings, F. Mathieu, J. Cacheux, T. Leichlé, L. Nicu, W. Nicolazzi, L. Salmon, G. Molnár, A. Bousseksou, *J. Am. Chem. Soc.* 30(46), 464001 (2018)

R74- Nanowire based bioprobes for electrical monitoring of electrogenic cells, A. Casanova, L. Bettamin, F. Mathieu, H. Martin, D. Gonzalez-Dunia, L. Nicu, G. Larrieu, *J. Phys. Condensed Matter* 30(46), 464001 (2018)

2019

- R75-** Multiplexed functionalization of nanoelectromechanical systems with photopatterned molecularly imprinted polymers, D. Dezest, T. Leïchlé, P. Teerapanich, F. Mathieu, BTS. Bui, K. Haupt, L. Nicu, *J. Micromech. Microeng.* 29(2), 025013 (2019)

2020

- R76-** Piezoelectric nanoelectromechanical systems integrating microcontact printed PZT films, Saya, Daisuke; Dezest, Denis; Welsh, Aaron; Mathieu, Fabrice; Thomas, Olivier; Leichle, Thierry; Trolrier-McKinstry, Susan; Nicu, Liviu, *J. Micromech. Microeng.* 30(3), 035004 (2020)
- R77-** MEMS Biosensors and CoVid-19: missed opportunity, Leïchlé T, Nicu L, Alava T, *ACS Sensors* 5(11), 3297 (2020)

2021

- R78-** Magnetophoresis-assisted capillary assembly: a novel approach for fabricating nanostructured metamaterials, Pierre Moritz, Antoine Gonon, Liviu Nicu, Lise-Marie Lacroix, *ACS Nano*, 15(3), 5096 (2021)
- R79-** Facile integration of photochromic molecules into micromechanical devices for light-induced actuation, José Angulo Cervera, Liviu Nicu, Gabor Molnar, Azzedine Bousseksou, *Material Advances*, 2(15), 5057 (2021)
- R80-** Investigation of the Effect of Spin Crossover on the Static and Dynamic Properties of MEMS Microcantilevers Coated with Nanocomposite Films of [Fe (Htrz) 2 (trz)](BF4)@ PVDF, José Elías Angulo-Cervera, Mario Piedrahita-Bello, Fabrice Mathieu, Thierry Leichle, Liviu Nicu, Lionel Salmon, Gábor Molnár, Azzedine Bousseksou, *Magnetochemistry* 7, 114 (2021)

2022

- R81-** Crystallinity and piezoelectric properties of spray-coated films of P (VDF70-TrFE30): effect of film thickness and spin-crossover nanofillers, Jose Elias Angulo Cervera, Mario Piedrahita-Bello, Baptiste Martin, Eric Dantras, Liviu Nicu, Thierry Leïchlé, Kevin Dalla Francesca, Antonio Da Costa, Anthony Ferri, Rachel Desfeux, Lionel Salmon, Gábor Molnár, Azzedine Bousseksou, *Journal of Materials Chemistry C* 10, 8466 (2022)
- R82-** Optimization of a vibrating MEMS electromagnetic energy harvester using simulations, Ilona Lecerf, Pierre Moritz, José Elías Angulo-Cervera, Fabrice Mathieu, David Bourrier, Liviu Nicu, Thierry Leïchlé, Frederico Orlandini-Keller, Thibaut Devillers, Nora M Dempsey, Guillaume Viau, Lise-Marie Lacroix, Thomas Blon, *The European Physical Journal Special Topics* 10.1140/epjs/s11734-022-00577-8 (2022)
- R83-** Hybrid Ni-Co-Ni Structures Prepared by Magnetophoresis as Efficient Permanent Magnets for Integration into Micro-Electro-Mechanical-Systems, Pierre Moritz, Ilona Lecerf, Antoine Gonon, Georgiana Dragomir-Maties, Thomas Blon, Simon Cayez, David Bourrier, Fabrice Mathieu, José Elías Angulo-Cervera, Liviu Nicu, Thierry Leïchlé, Thierry Ondarçuhu, Guillaume Viau, Lise-Marie Lacroix, *Advanced Engineering Materials*, 10.1002/adem.202200733 (2022)
- R84-** Hybrid Organic Microelectromechanical Devices Driven by Thermosalient Effect, Jad Mahmoud Halabi, Isabelle Séguy, Ludovic Salvagnac, Thierry Leïchlé, Daisuke Saya, Fabrice Mathieu, Benjamin Duployer, Durga Prasad Karothu, Liviu Nicu, Panče Naumov, *Cell Reports Physical Science* 3, 101133 (2022)

2024

- R85-** Transfer of III-nitride epitaxial layers onto pre-patterned silicon substrates for the simple fabrication of free-standing MEMS, R. Gujarati, A. Kassem, C. Ayela, F. Mathieu, L. Nicu, S. Sundaram, I. Dufour, T. Leichlé, JP Salvestrini, A. Ougazaden, *Applied Physics Letters* 124, 104102 (2024)
- R86-** Stereolithography 3D Printing of Stimuli-Responsive Spin Crossover@ Polymer Nanocomposites with Optimized Actuating Properties, O. Kulkarni, A. Enrique-Cabrera, X. Yang, J. Foncy, L. Nicu, G. Molnar, A. Bousseksou, *Nanomaterials* 14 (15), 1243 (2024)

2025

- R87-** A MEMS electromagnetic vibration energy harvester with monolithically integrated NdFeB micromagnets, I. Lecerf, JE Angulo-Cervera, R. Orlandini-Keller, P. Moritz, F. Mathieu, T. Leichlé, N. Dempsey, LM Lacroix, *Advanced Materials Technologies* 10 (10), 2401817 (2025)
- R88-** III-Nitride MEMS drum resonators on flexible metal substrates, A. Kassem, R. Gujrati, D. Bourrier, C. Ayela, F. Mathieu, I. Dufour, L. Nicu, T. Leichlé, JP Salvestrini, A. Ougazaden, *Microsystems & Nanoengineering* 11 (1), 197 (2025)

2026

- R89-** On the dynamics of viscoelastic cantilever beams under arbitrary base motion and eccentric damped tip mass via integral transform, GM Stieven, CFT Matt, L Nicu, CPN Cotta, RM Cotta, J. Sound. Vibr. 626, 119640 (2026)

Congrès Internationaux avec comité de lecture (avec/sans actes)

1998

- C1.** Piezoelectric properties of PZT films for microcantilever.
E.Cattan , T. Haccart , G. Velu , D. Remiens , C. Bergaud , **L.Nicu**
European Materials Research Society (EMRS'98) Spring Meeting, Strasbourg (France), (16-19 Juin 1998).
- C2.** Fabrication of cantilever arrays for parallel operation : application to nanometer-scale testing and printing.
C. Bergaud, **L. Nicu**, A. Martinez, T. Ondarçuhu, C. Joachim, E. Cattan, D. Remiens
2nd France-Japan Workshop from Nano to Macroscale science and technology through Microsystems (N2M'98), Toulouse, (November 8-10, 1998).

1999

- C3.** From Circuit to Microsystem : Using a Transformer equivalent circuit to study a piezo-electric actuator.
F. Oms-Elisabelar, C. Bergaud, **L. Nicu**
International Conference on Design, Test and Microfabrication of MEMS/MOEMS, 415-423, Paris, (30 March-1 April 1999).
- C4.** Multi-mode frequency analysis for the dynamic characterization of microstructures.
C. Bergaud , **L.Nicu** , A.Martinez , P.Gerard , M. Benzohra

International Conference on Design, Test and Microfabrication of MEMS/MOEMS, 757-765, Paris, (30 March-1 April 1999).

C5. Modeling a piezoelectric actuator using a transformer equivalent circuit.

F. Oms-Elisabelar, C. Bergaud, **L. Nicu**, A. Martinez

International Conference on Modelling and Simulation of Microsystems, 249-254, Puerto Rico, (19-21 April 1999).

C6. Static and dynamic characterization of buckled composite SiO₂-Au microbridges.

L. Nicu, C. Bergaud, P. Temple-Boyer, A. Martinez

Material Research Symposium 1999 Fall Meeting, Boston Massachusetts, (November 29 – December 3, 1999).

2001

C7. Microfabricated tools for nanometer-scale applications. (*Oral Inv.*)

C. Bergaud, **L. Nicu**, B. Bélier *Mixed Design of Integrated Circuits and Systems*, Zakopane, Poland (June 21-23, 2001).

C8. Design and fabrication of arrays of nanoelectromechanical resonators for parallel detection of biomolecular interactions

C. Bergaud, E. Cocheteau, M. Guirardel, **L. Nicu**, B. Belier

8th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA'2001), Antibes - Juan les Pins (France), Vol.2, pp.305-308, (15-18 Octobre 2001).

2004

C9. On-chip self-sensing function of 4x4 matrix micromachined resonating piezoelectric membranes for mass detection applications (*Oral*)

L. Nicu, M. Guirardel, D. Saya, S. Hinh, J. Sicard, D. Lagrange, F. Mathieu, E. Cattan, D. Remiens, C. Bergaud

2004 IEEE International Ultrasonics, Ferroelectrics, and Frequency Control 50th Anniversary Joint Conference, Montréal, Canada, (24-27 August, 2004).

C10. Detection of Gold Colloid Adsorption at a Solid/Liquid Interface Using Micromachined Piezoelectric Resonators

Matthieu Guirardel, **Liviu Nicu**, Daisuke Saya, Yannick Tauran, Eric Cattan, Denis Remiens, Christian Bergaud

The 10th International Meeting on Chemical Sensors, Tsukuba, Japan, (July 11-14 2004).

C11. Digital self-calibration method for MEMS sensors

J. Juillard, E. Colinet, C. Bergaud and **L. Nicu**

2004 IEEE Instrumentation and Measurement Technology Conference, Como, Italy (May, 18-20, 2004)

2005

C12. Application of MCLC Method for Estimating the Parameters of MEMS Sensors

E. Colinet, J. Juillard and **L. Nicu**

2005 NSTI Nanotechnology Conference and Trade Show, Anaheim, California, U.S.A. (May 8-12, 2005)

C13. First steps towards a fully automated trim control for liquid deposition device at the microscale using piezoresistive cantilevers array

Pascal Belaubre, Jean-Bernard Pourciel, Daisuke Saya, Thierry Leïchlé, Fabrice Mathieu, **Liviu Nicu** and Christian Bergaud

Transducers 2005, Seoul, South Korea (June, 5-9, 2005)

C14. Liquid Loading of Silicon-based Cantilevers using Electrowetting Actuation for Microspotting Applications **(Oral)**

T. Leïchlé, D. Saya, P. Belaubre, JB. Pourciel, F. Mathieu, JP. Laur, **L. Nicu** and C. Bergaud
Transducers 2005, Seoul, South Korea (June, 5-9, 2005)

C15. Piezoresistive signal downmixing for parallel detection of Si-based microcantilevers resonant frequencies **(Oral)**

Fabrice Mathieu, Daisuke Saya, Christian Bergaud and **Liviu Nicu**
2005 IEEE of Sensors Conference, Irvine, USA (November, 1-4, 2005)

C16. Dynamic mode analysis of cation binding induced mechano-chemical stress on free-standing protein films **(Oral)**

Daisuke Saya, **Liviu Nicu**, Anthony-William Coleman and Christian Bergaud
2005 Eurosensors XIX Conference, Barcelona, Spain (September, 12-14, 2005)

C17. Determination of the d_{31} piezoelectric coefficient of PZT thin films using dedicated microelectromechanical systems

C. Ayela, E. Cattan, C. Soyer, C. Bergaud, M. Pugnère and L. Nicu
MRS 2005 Fall Meeting, Boston, USA (Nov.28 - Dec. 2, 2005)

2006

C18. A Closed-loop MEMS-based Spotter Integrating Position Sensors with Nanometric Precision for the Control of Droplets Uniformity **(Oral)**

Thierry Leïchlé, Daisuke Saya, Jean-Bernard Pourciel, Fabrice Mathieu, Christian Bergaud, and Liviu Nicu
IEEE of NanoElectroMechanical Systems, Zouhai, Chine (Jan. 18 – Jan. 20, 2006)

C19. Determination of fluid viscoelastic properties using resonant microcantilever **(Oral)**

Naser Belmiloud, Frédéric Lochon, Isabelle Dufour, Pierre Guillot, Matthieu Guirardel, Annie Colin and Liviu Nicu
2nd International Workshop on Nanomechanical Sensors, Copenhagen, Denmark (May 7 – 10, 2006)

C20. High quality factors of silicon membranes with piezoelectric actuation and detection scheme for biosensing purpose in liquid media **(Oral Inv.)**

C. Ayela, T. Leïchlé, C. Bergaud, E. Cattan, C. Soyer, M. Pugnère and L. Nicu
2006 IEEE of Frequency Control, Miami, USA (June 5 – 7, 2006)

C21. Theoretical considerations for continuous electrowetting in U-shaped channels

L. Tanguy, T. Leïchlé and L. Nicu
5th International Meeting on Electrowetting Rochester, USA (31 May to 2 June, 2006)

C22. Spot-in-spot hybridization of oligonucleotides addressed on a glass slide by a microcantilever based depositing device

N. Berthet, T. Leïchlé, E. Trévisiol, J. B. Pourciel, D. Saya, C. Bergaud, L. Nicu, J. M. François *MicroTAS 2006* Tokyo, Japon (5 – 9 Novembre, 2006)

C23. MEMS-based picoliter electrochemical cell array for the fabrication of oligonucleotide chip T. Leïchlé, E. Descamps, B. Corso, S. Laurent, P. Mailley, T. Livache, J. B. Pourciel, C. Bergaud, L. Nicu *MicroTAS 2006* Tokyo, Japon (5 – 9 Novembre, 2006)

C24. Molecularly Imprinted Polymer-based immunoassay using resonant piezoelectric membranes with integrated actuation and detection scheme

C. Ayela, F. Vandeveldel, K. Haupt and L. Nicu

International Conference on Micro and Nano Engineering (MNE 2006) Barcelona, Spain (17 – 20 September, 2006)

C25. Collective fabrication of in-plane silicon nanotip for parallel femtoliter droplet deposition **(Oral)**, Daisuke Saya, Thierry Leïchlé, Jean-Bernard Pourciel, Christian Bergaud and Liviu Nicu *International Conference on Micro and Nano Engineering (MNE 2006) Barcelona, Spain (17 – 20 September, 2006)*

C26. Microarrays' fabrication using electrochemical femtocell **(Oral Inv.)**, E. Descamps, T. Leïchlé, L. Nicu, C. Bergaud, T. Livache, P. Mailley, *International conference in electroanalysis ESEAC 2006, 10-15th june 2006 Bordeaux.*

C27. Fabrication of ODN chips using parallel cantilever based electrodeposition in picolitre volumes **(Oral Inv.)**, E. Descamps, T. Leïchlé, P. Mailley, T. Livache, C. Bergaud, L. Nicu, *International conference ELECMOL'06, 11–15 Decembre 2006 Grenoble.*

C28. Substrate microstructuration by biologically fonctionnalised conducting polymers using localised electrochemical methods **(Oral)**, P. Mailley, E Descamps, E. Fortin, S. Szunerits, T. Livache, T. Leïchlé, L. Nicu, C. Bergaud, *4th International Workshop on SECM, SECM 2006, 4-6th September 2006, Falcade, Italy*

C29. Specific nearby electronic scheme for multiplexed excitation and detection of piezoelectric silicon-based micromembranes resonant frequencies using FPGA technology **(Oral)**, Denis Lagrange, Cédric Ayela, Eric Cattan, Caroline Soyer and Liviu Nicu, *2006 IEEE of Sensors Conference, Daegu, Corée du Sud (October, 22-26, 2006)*

C30. Vibrating Microcantilever used as Viscosimeter and Microrheometer **(Oral)** N. Belmiloud, I. Dufour, L. Nicu, A. Colin , J. Pistré, *2006 IEEE of Sensors Conference, Daegu, Corée du Sud (October, 22-26, 2006)*

2007

C31. Bioplume: A MEMS-based Femtoliter Droplet Dispenser with Electrosporting Means for Patterning Surfaces at the Micro-and Nanometer Scales (Oral), Thierry Leïchlé, Fabrice Mathieu, Jean-Bernard Pourciel, Daisuke Saya, Christian Bergaud, Nicu Liviu, *MRS 2007 Spring Meeting, San Francisco, USA (Apr.9 - 14, 2007)*

C32. Molecularly Imprinted Polymer-Based Immunoassay of Herbicide Acids Using Resonant Piezoelectric Membranes with Integrated Actuation and Read-Out Capabilities (Oral Inv.), Cédric Ayela, Fanny Vandeveld, Karsten Haupt, Nicu Liviu, *MRS 2007 Spring Meeting, San Francisco, USA (Apr.9 - 14, 2007)*

C33. Simulation of ac-electroosmotic flows for concentration of particles on biosensors, L. Tanguy, G. Casalis and L. Nicu, *2007 NSTI Nanotechnology Conference and Trade Show, Santa Clara, California, U.S.A, (May 20-24, 2007).*

C34. Electrical equivalent circuit for air and liquid characterization of a multilayer micromembrane with piezoelectric actuation and read-out capabilities, T. Alava, C. Ayela and L. Nicu, *2007 NSTI Nanotechnology Conference and Trade Show, Santa Clara, California, U.S.A, (May 20-24, 2007).*

C35. Piezoelectric micromembranes for the fabrication of a diagnostic chip based on the real-time monitoring of antigen-antibody interactions C.Ayela and L.Nicu, *Transducers 2007, Lyon, France (June 10 – 14, 2007)*

C36. Novel methods to pattern polymers for microfluidic applications (Oral)C. Martin, A. Llobera, J. Bausells, G. Villanueva, Anja Voigt, Vahid Fakhfour, Thierry Leïchlé, G. Gruetzner, L.Nicu, J. Brugger and F. Pérez-Murano, *International Conference on Micro and Nano Engineering (MNE 2007) Copenhagen, Denmark (23 – 26 September, 2007)*

C37. Piezoresistive sensitivity of MEMS-based liquid dispensing system with built-in force sensors (Oral) Maryna Lishchynska, Thierry Leïchlé , Liviu Nicu, International Conference on Micro and Nano Engineering (MNE 2007) Copenhagen, Denmark (23 – 26 September, 2007)

C38. Contact force control of piezoresistive cantilevers with in-plane nanotips for femtoliter droplet deposition (Oral Inv.)

Daisuke Saya, Thierry Leïchlé, Jean-Bernard Pourciel, Fabrice Mathieu, Christian Bergaud, and Liviu Nicu, International Conference on Micro and Nano Engineering (MNE 2007) Copenhagen, Denmark (23 – 26 September, 2007)

2008

C39. Piezoelectric micromembranes for the fabrication of a diagnostic chip based on the real-time monitoring of antigen-antibody interactions (**Oral**), *Biosensors 2008* Shanghai, China (24 – 26 May, 2008)

C40. Buckling and non-linear vibrations of a MEMS biosensor, Olivier Thomas, Cyril Touzé, Cédric Ayela and Liviu Nicu, *ENOC 2008*, Saint Petersburg, Russia (30 June – 4 July, 2008)

C41. AC-electroosmosis assisted localization and enhanced bioconcentration on electrochemically biofunctionalized microdevices, L. Tanguy, S. Salomon, P. Mailley, L. Nicu, *μTAS 2008*, San Diego, USA (12-14 Octobre 2008)

C42. Portable, autonomous battery-powered piezoelectric MEMS-based platform using molecularly imprinted polymers for biomedical assays (**Oral Inv.**), C. Ayela, F. Vandeveld, K. Haupt, L. Nicu, *MRS 2008 Spring Meeting*, San Francisco, USA (Apr.9 - 14, 2008)

2009

C43. Investigation of molecularly imprinted polymers to detect proteins by an integrated, autonomous piezoelectric micromembranes platform, C. Ayela, K. Haupt, L. Nicu, *μTAS 2009*, Jeju, South Korea (Nov. 1-5, 2009)

C44. Micro and nanopatterning tools to produce biomimetic chips based on molecularly imprinted polymers (**Oral**), Cédric Ayela, Hélène Lalo, Samuel Guillon, Thierry Leïchlé, Fanny Vandeveld, Ana Valvanuz Linares, Liviu Nicu, Karsten Haupt, *MRS 2009 Fall Meeting*, Boston, USA (Nov.22 – Nov. 27, 2009)

C45. Buckling and non-linear vibrations of a piezoelectric stratified plate. Application to a MEMS mass sensor (**Oral**), O. Thomas, L. Nicu, C. Touze, *19th Congress of French Mechanical*, Marseille, France, (Aug. 24-28, 2009)

2010

C46. Dielectrophoretic characterization and sorting of multi-layer functionalized nanobeads, S. Salomon, L. Nicu, *Biosensors 2010*, Glasgow, UK (May 26-28, 2010)

C47. MEMS-based multisensors platform with piezoelectric actuation and piezoresistive read-out capabilities for biosensing applications, T. Alava, F. Mathieu, C. Soyer, D. Remiens, L. Nicu, *Biosensors 2010*, Glasgow, UK (May 26-28, 2010)

C48. Actuation and sensing integration challenges at the microscale: the *Gordian Knot* of the resonant bioMEMS realm (**Oral**), T. Alava, F. Mathieu, C. Soyer, D. Remiens, L. Nicu, *IEEE Int. Freq. Control Symposium*, Newport Beach, USA (June 1-4, 2010)

2011

- C49.** The Microcantilever: a Versatile Tool for Measuring Fluid Properties (*Oral Invited*) I. Dufour, A. Maali, C. Ayela, Y. Amarouchene, B. Caillard, A. Darwiche, M. Guirardel, H. Kellay, E. Lemaire, F. Mathieu, C. Pellet, D. Saya, M. Youssry, A. Colin, L. Nicu, *8th International Workshop on Nanomechanical Sensing 2011*, Dublin, Irlande (May 11-13, 2011)
- C50.** Fabrication and Characterization of 100-nm Wide Silicon Nanocantilevers using Top-Down Approach, S. Guillon, D. Saya, L. Mazenq, S. Perisanu, P. Vincent and L. Nicu, *IEEE of NEMS*, Kaohsiung, Taiwan (Feb. 20-23, 2011)
- C51.** Lead-zirconate titanate (PZT) nanoscale patterning by UV-based lithography lift-off technique for nano-electromechanical systems applications, S. Guillon, D. Saya, L. Mazenq, C. Soyer, D. Remines, J. Costecalde, L. Nicu, *IEEE Int. Symposium on Applications of Ferroelectrics*, Vancouver, Canada (July 24-27, 2011)
- C52.** Porous microcantilevers for enhanced chemical detection in liquid media (*Oral Invited*) Cédric Ayéla, Georges Dubourg, Hélène Lalo, Liviu Nicu, Claude Pellet, Isabelle Dufour, Alexander Kuhn, Karsten Haupt, MRS Fall Meeting, Boston (Nov. 2011)

2012

- C53.** Single-step, high-throughput biofunctionalization of nanoelectromechanical systems by means of nanocontact printing method S. Guillon, S. Salomon, F. Seichepine, D. Dezest, F. Mathieu, A. Bouchier, L. Mazenq, C. Thibault, C. Vieu, T. Leïchlé, L. Nicu, *IEEE of MEMS*, Paris (Jan. 29 – Feb. 2, 2012)
- C54.** Design and fabrication of SU-8 based closed microchannel using single step UV-photolithography for highly oriented axonal growth F. Larramendy, A. Bendali, M. C. Blatché, S. Picaud, L. Mazenq, P. Temple-Boyer, L. Nicu, *Biosensors 2012*, Cancun (15-18 Mai, 2012)
- C55.** Integrative technology-based approach of MEMS for biological applications (*Oral Invited*), L. Nicu, T. Alava, T. Leïchlé, D. Saya, J.-B. Pourciel, F. Mathieu, C. Soyer, D. Remiens, C. Ayela, K. Haupt, *IEEE of EMBS* (27 Aug. – 3 Sept., San Diego, 2012)
- C56.** Piezoelectric microelectromechanical resonators: holistic electrical modeling and experimental validation of geometry-dependent actuation/sensing circuitry, F. Mathieu, F. Larramendy, D. Dezest, C. Huang, C. M. Eichfeld, G. Lavalée, S. Miller, W. Mansfield; S. Trolier-McKinstry, L. Nicu, *MNE 2012*, Toulouse (17 -21 sept. 2012)
- C57.** Finite elements reduced order models of piezoelectric micro-resonators: electric charge computation and nonlinear parametric amplification, O. Thomas, S. Nezambadi, F. Mathieu, L. Nicu, J.-F. Deu, *VCB & ASTELAB 2012*, Clamart (3 – 5 Juillet, 2012)
- C58.** Nanoelectromechanical systems for biology: where to go from now? (*Oral Invited*), L. Nicu and T. Leïchlé, *IEEE of CAS 2012*, Sinaia (16 – 19 Oct., 2012)

2013

- C59.** Piezoelectric parametric amplifiers with integrated actuation and sensing capabilities, O. Thomas, F. Mathieu, W. Mansfield, C. Huang, S. Trolier-McKinstry, L. Nicu, *IEEE of MEMS 2013 Taipei* (20-24 Jan., 2013)

C60. Micro-masonry for small batch processing of suspended MEMS structures, H. Keum, Y. Zhang, D. Dezest, Z. Yang, F. Mathieu, L. Nicu, T. Leichlé and S. Kim, Enabling Nanofabrication for Rapid Innovation (ENRI 2013), Silverado Resort, California (18-21 Aug. 2013)

C61. A Modified Microcontact Printing Method for the Biofunctionalization of Nanocantilever Arrays, S. Salomon, T. Leichlé, D. Dezest, F. Seichepine, and L. Nicu, 7th International Conference on Materials for Advanced Technologies (ICMAT 2013), Singapore (June 30 – July 5, 2013)

C62. Confinement printing of thin film lead zirconia titanate for MEMS applications, A. Welsh, D. Dezest, L. Nicu, M. Hickner, S. Trolier-McKinstry, IEEE Joint UFFC, EFTF and PFM Symposium, Prague (21-25 July 2013)

2014

C63. PZT Nanofilm-based, Wafer-Scale Piezoelectric Nanoresonators, D. Dezest, O. Thomas, F. Mathieu, L. Mazonq, C. soyer, J. Costecalde, D. Remiens, J. F. Deu, L. Nicu, *MRS 2014 Spring Meeting*, San Francisco, USA (Apr.20 - 25, 2014)

C64. Sensitivity optimization of silicon microcantilever-based density sensor for hydrogen detection, M. T. Boudjiet, J. Bertrand, L. Mazonq, T. Leichlé, F. Mathieu, L. Nicu, C. Pellet, I. Dufour, *11th Nanomechanical Sensing Workshop NMC 2014*, Madrid (Spain)

2015

C65. PZT Nanofilm-Based Wafer Scale Nanoresonators, Denis Dezest, Fabrice Mathieu, Laurent Mazonq, Liviu Nicu, Caroline Soyer, Jean Costecalde, Olivier Thomas, Denis Remiens, *IEEE Frequency Control Symposium 2015*, Denver (USA)

C66. Determination of the effective mass and stiffness of a micro resonator from a single optical characterization, A Bhaswara, D Dezest, L Nicu, T Leichle, B Legrand, *2015 Transducers-2015 18th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS)*, Anchorage (USA)

2016

C67. Nearby electronic scheme for actuation and detection of resonance frequency and quality factor of organic piezoelectric MEMS resonators, Pierre-Henri Ducrot, Isabelle Dufour, Cédric Ayela, Fabrice Mathieu, Liviu Nicu, *2016 IEEE International Frequency Control Symposium*, New Orleans (USA)

C68. Simple fabrication process for organic piezoelectric resonators: application for viscosity sensing, Pierre-Henri Ducrot, Isabelle Dufour, Fabrice Mathieu, Liviu Nicu, Martin Heinisch, Bernhard Jakoby, Cédric Ayela, *Proceedings of the 13th International Workshop on Nanomechanical Sensing, NMC 2016*, Delft (Netherlands)

C69. High-K thin films as dielectric transducers for flexural M/NEMS resonators, Khadim Daff, Adrian Laborde, Olivier Thomas, Laurent Mazonq, Liviu Nicu, Thierry Leichl, Bernard Legrand, *2016 IEEE 29th International Conference on Micro Electro Mechanical Systems (MEMS)*, Shanghai (China)

C70. Probing electrical activity of single neurons based on ID nanostructures: From extra to intracellular interfacing, Adrien Casanova, Marie-Charline Blatche, Fabrice Mathieu, Aurélie Lecestre, Cécile Ferre, Daniel Gonzalez-Dunia, Liviu Nicu, Guilhem Larrieu, *IEEE Nanotechnology Materials and Devices Conference (NMDC 2016)*, Toulouse.

2017

C71. Spin crossover materials for MEMS actuation: film integration and characterization, M. D. Manrique-Juarez, S. Rat, L. Mazenq, ..., L. Nicu, L. Salmon, G. Molnar, A. Bousseksou, *19th Int. Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2017)*, Taiwan.

C72. Full system for piezoelectric organic MEMS resonators operating in liquid media, P.H. Ducrot, I. Dufour, L. Nicu, F. Mathieu, C. Ayela, *19th Int. Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2017)*, Taiwan.

C73. Integration of FinFETs and 3D nanoprobe devices on a common bio-platform for monitoring electrical activity of single neurons, A. Casanova, M.C. Blatché, F. Mathieu, L. Bettamin, H. Martin, D. Gonzalez-Dunia, L. Nicu, G. Larrieu, *IEEE IEDM 2017*, San Francisco.

C74. Fabrication and characterization of mechanical resonators integrating microcontact printed PZT films, D. Saya, D. Dezest, F. Matheiu, L. Nicu, T. Leïchlé, O. Thomas, A. J. Welsh, S. Trolier-McKinstry, *Joint IEEE International Symposium on Applications of Ferroelectrics (ISAF) International Workshop on Acoustic Transduction Materials and Devices (IWATMD) / Piezoresponse Force Microscopy Workshop (PFM) 2017*, Atlanta (USA).

2018

C75. Finite elements based reduced order models for nonlinear dynamics of piezoelectric and dielectric laminated micro/nanostructures, O. Thomas, A. Givois, A. Grolet, J. F. Deu, C. Fuinel, F. Mathieu, B. Legrand, L. Nicu, *Euromech Colloquim 2018*, Porto (Portugal).

2019

C76. Development of micro-magnets for the electromagnetic transduction of MEMS, P. Mortiz, F. Mathieu, D. Bourrier, D. Saya, T. Blon, N. Dempsey, K. Hasselbach, R. Kramer, L. Nicu, LM. Lacroix, G. Viau, T. Leïchlé, *20th Int. Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2019)*, Berlin.

2020

C77. Magnetophoresis Assisted Capillary Assembly of Cobalt Nanorods: A New Source of Permanent Magnets for MEMS, P. Moritz, F. Mathieu, D. Bourrier, D. Saya, A. Gonon, L. Nicu, LM. Lacroix, *2020 IEEE 33rd International Conference on Micro Electro Mechanical Systems (IEEE MEMS 2020)*, Vancouver

C78. Resonant MEMS for Gas Detection Based on the Measurements of Physical Properties of Gas Mixtures, Isabelle Dufour, Luis Iglesias Hernandez, Priyadarshini Shanmugam, Jean-François Michaud, Daniel Alquier, Dominique Certon, Maria-Dolores Manrique-Juarez, Thierry Leïchlé, Fabrice Mathieu, Laurent Mazenq, Liviu Nicu, *2020 Joint Conference of the IEEE International Frequency Control Symposium and International Symposium on Applications of Ferroelectrics (IFCS-ISAF)*, Keystone (USA) (**Oral Invited**)

2021

C79. MEMS-based platforms for characterization of advanced functional materials, L. Nicu, S. Trolier-McKinstry, G. Molnar, A. Bousseksou, M. Manrique, F. Mathieu, D. Saya, K. Haupt, D. Dezest, T. Leïchlé, *IEEE NEMS 2021*, Xiamen (China), (**Keynote Speaker**)

2022

C80. H2MEMS Project: Resonant MEMS for Detection of Hydrogen Release in Radioactive Waste Disposal Facility, I. Dufour, L. I. Hernandez, [...], L. Nicu, [...], J. Bertrand, *IEEE Int. Freq. Control Symposium 2022*, Paris (France) (**Keynote Speaker**)

2023

C81. A Simple Process for the Fabrication of Parallel-Plate Electrostatic MEMS Resonators by Gold Thermocompression Bonding, DM Juarez, F. Mathieu, [...], L. Nicu, T. Leichlé, 2023 IEEE 36th International Conference on Micro Electro Mechanical Systems (MEMS), Munich (Germany).

Brevets

B1. Fabrication monolithique auto-alignée de matrices de biocapteurs piézorésistifs résonnants pour la détection d'interactions moléculaires spécifiques.

C. Bergaud, B. Belier, **L. Nicu**, E. Cocheteau, A. Martinez

FR0105545 (publié le **20 avril 2001**), EP1381852 (publié le 21 janvier 2004), WO02086479 (publié le 31 octobre 2002), LAAS-CNRS de Toulouse

B2. Capteur gyrométrique micro-usiné à détection dans le plan de la plaque usinée

L. Nicu, C. Rougeot, J. Inglese, B. Leverrier

WO2004042324 (publié de 21 mai 2004), FR0213835 (déposé le 11 mai 2002), Thales Avionics VALENCE

B3. Capteur inertiel micro-usiné pour la mesure de mouvements de rotation

L. Nicu, C. Rougeot, J. Inglese, B. Leverrier, O. Lefort

WOFR0204273 (publié de 3 juillet 2003), FR0116555 (déposé le **20 décembre 2001**), Thales Avionics VALENCE