Neus Sabaté Vizcarra

Personal information

Date of birth: 29 March 1975
Place of birth: Tarragona, Catalonia, Spain
URL for web site: www.speedresearchgroup.com
https://www.linkedin.com/pub/neus-sabate/5/842/320
Researcher unique identifier: 10042736400 (Author ID Scopus)

Current position

ICREA Research Professor at the Institut de Microelectrònica de Barcelona (IMB-CNM-CSIC) since October 2015

Career Breaks

Sick leaves due to pregnancy discomforts (from 06/09 until 08/09 and from 05/12 until 07/12)
Maternity leaves (from 08/09 until 02/10 and from 12/12 until 05/13)

Previous positions

Position	R&D Institute	Organism	Period
Ramon y Cajal Postdoc	IMB-CNM Barcelona	CSIC	2008-2015
Postdoctoral researcher	IMB-CNM Barcelona	CSIC	2006-2007
Postdoctoral researcher	Electronics Engineering	University Barcelona	2005-2006
Postdoctoral researcher	IZM Berlin	Fraunhofer	2004-2005
Postdoctoral researcher	Electronics Engineering	University Barcelona	2004
PhD student	IMB-CNM Barcelona	CSIC	1999-2003
PhD student	LAAS-Toulouse	CNRS	1999
PhD student	Electronics Engineering	University Barcelona	1998-1999
ERASMUS student	PHASE-Strasbourg	CNRS	1998

Education

Academic degree	Institution	Date
Bachelor of Physics	Universitat de Barcelona	07/1998
Posgraduate in theoretical and practical finite element analysis	Universidad Nacional Educación a Distancia	07/2000
Postgraduate in management control	Universitat Pompeu Fabra	06/2004
PhD in Physics – cum laude	CNM – CSIC/ Universitat Barcelona	11/2003

Product Management and Technological Innovation certificate	Universitat Politècnica de Catalunya	04/2012

Teaching activities

Lecture in Master degree for Renewable Energies, Fuel Cells and Hydrogen
University Menéndez-Pelayo Madrid. 2006-2007
Topic: A review of portable fuel cells

Lecture in Master degree in Micro and Nanosystems
University Autonomous Barcelona, 2014-2015
Topic: Microfuel cells perspectives and applications

Lecture in Introduction to Innovation and Entrepreneurship Advanced Course
University Autonomous Barcelona, April 2015
Topic: How personal life led me to a business idea

Lecture in Master degree in Biomedical Engineering
University of Barcelona, May 2015
Topic: Micropower sources for Autonomous Wearables and Diagnostic Sensors

Lecture in Facultad de Electronica Industrial
Universidad Politécnica de Madrid, April 2016
Topic: Wearables for Healthcare

Lecture in Master degree in Biomedical Engineering
University of Barcelona, May 2018
Topic: Fuelium: paper batteries for the diagnostic sector

Lecture in Master degree in Innovation and Entrepreneurship in Biomedical Engineering
University of Barcelona, May 2019
Topic: Fuelium: creating a spin-off from research

Inspirational Lecture for Undergraduated Students
Escola Montagut College, Vilafranca del Penedés, March 2019
Topic: A sustainable future with paper batteries

Lecture in Master degree in Nanostructured Materials for Nanotechnology
University of Zaragoza, November 2019
Topic: Fuelium: from Research to a Spin-off company

Supervision of students

Direction of PhD Theses

1.Juan Pablo Esquivel Bojórquez (2006-2010)	**Microfabricated Fuel Cells as Power Sources for MEMS**
	Qualification: Cum Laude and European PhD mention
2.Iñigo Garbayo Senosiain (2008-2013)	**Development of micro solid oxide fuel cells in silicon technology**
	Qualification: Cum Laude and European PhD mention
3.Maria José González Guerrero (2011-2015)	**Enzymatic Microfluidic Fuel cells: from active to passive power**
	Qualification: Cum Laude and European PhD mention
4.Perla Alday Lara (2015-2018)	**Biodegradable batteries as sustainable power sources for portable devices**
	Qualification: Excellent

5.Laura Ortega Tañá (2016 - on going)	**Battery conductivity sensor for single use portable devices** Qualification: -
6.Dmitry Galyamin (2017-on going)	**Self-powered lateral flow devices** Qualification: -
7.Marina Navarro Segarra (2018- on going)	**Fully organic microbatteries for single use applications** Qualification: -

Direction of Master theses

1. Johannes G.Hauer (2010-2011) *Program Leonardo*	**Development of Hybrid PMDS-Silicon microfuel cells** University of Isny, Germany
2. Thomas Wolf (2011) *Program Leonardo*	**Development of metal-assisted chemical etching processes** TU University Berlin, Germany
3. Marina Segarra Navarro (2017-2018)	**Estudio de una pila de combustible de etanol para la detección de alcohol en saliva** Master in Electrochemistry, Universitat de Barcelona
4. Anna Llorella Bustins (2017-2018)	**Development of a self-powered fully printable glucometer** Master in Biomedical Engineering, Universitat de Barcelona
5. Aina Fitó Parera (2019)	**Nanozymatic self-powered pad for glucose biosensing** Master in Advanced Nanoscience and Nanotechnology, Universitat Autònoma de Barcelona

Direction of Bachelor students

1. Miguel Ortiz (Spring 2014)	Software development or disposable paper-based alcoholimeter Training Practices Escuela Técnica y Superior de Ingenieria de la UAB
2. Alberto Bertrán (Spring 2014)	Software development or disposable paper-based alcoholimeter Training Practices Escuela Técnica y Superior de Ingenieria de la UAB
3. Marina Navarro Segarra (Spring 2016)	Caracterización y diseño de estructuras fluídicas en papel para dispositivos de diagnóstico Bachelor Final Project in Physics – Autonomous University of Barcelona
4. Miquel Martí Mas (Spring 2017)	Desenvolupament d'una bacteria sensora de conductivitat per a detecció de fibrosi quística Bachelor Final Project in Physics – Autonomous University of Barcelona
5. David Batet Palau (Spring 2017)	Desenvolupament de microbateries destinades a aplicacions intracel·lulars Bachelor Final Project in Nanoscience and Nanotechnology – Autonomous University of Barcelona

6. Dani Coll (Spring 2018)	Electrochemical study of the oxidase-like activity of cerium oxide nanoparticles Bachelor Final Project in Nanoscience and Nanotechnology – Autonomous University of Barcelona
7. David Agüera del Baño (Spring 2018)	Development of microbatteries for intracellular Applications Bachelor Final Project in Nanoscience and Nanotechnology – Autonomous University of Barcelona
8. Daniel González Garcia (Spring 2018)	Exploració dels mecanismes de titració conductimètrica a matrius de paper per a la detecció selectiva d'ions Bachelor Final Project in Physics – Autonomous University of Barcelona
9. Adrià Noguera Monteagudo (Spring 2019)	Fabricació, Caracterització i Modelització de Microbateries Bachelor Final Project in Nanoscience and Nanotechnology – Autonomous University of Barcelona
10. Laia Iturrizaga Zurita (Spring 2019)	Ús de nanopartícules d'òxid de ceri com a oxidases en biosensors Bachelor Final Project in Chemistry – Autonomous University of Barcelona
11. Cristina Díaz Montfort (Spring 2019)	Caracterización de una pila de papel sensora de conductividad Bachelor Final Project in Chemistry – Autonomous University of Barcelona
12. Yara Acebo Barreiro (Autumn 2019)	Desenvolupament d'un pegat intel.ligent per a mesura continua de deshidratació en corredors Training Practice of Biomedical Engineering Degree at Universitat Politècnica de Catalunya (UPC)

Organization of Conferences and Chair activities

- Member of organizing committee of the Spanish Conference of Electronic Devices 2003, February 2003, Calella de la Costa (Barcelona)
- Member of the scientific committee and chairperson of the Micro-nano-reliability Conference 2007, September 2007, Berlin
- Chairperson at the 226th Meeting of the Electrochemical Society, Cancún, México, 5-8 October 2014
- Organizer and chairperson of the Spring Meeting of the Organic Electronics Association, Barcelona 12-13th June 2019

Commissions of trust

2009
- Scientific evaluator of a project dealing with “Microbial fuel cell development” for the Regional Government of Madrid

2010
- Member of the evaluation committee of postdoctoral candidates for IMB-CNM-CSIC posdoctoral grant JAE-DOC

2012
- Jury member of PhD defense "Microbial Fuel Cell Performance: design, operation and biological factors". Naroa Uria. Autonomous University Barcelona (07/09/2012)

2014
- Preliminary examiner of PhD thesis "Micro fuel cell fabrication technologies". Gianmario Scotti. Aalto University. Finland (06/02/2014).
- Member of the evaluation committee of postdoctoral candidates for 2-year postdoctoral contracts for the Spanish Ministry of Economy and Competitiveness (I+D Section)

2015
- Jury member of PhD defense "Bioimpedance monitoring system for pervasive biomedical applications” Jaume Punter Vilagrasa, University Barcelona, April 2015

2019
- Jury member of Bioimprinting scientific position at UIC, April 2019
- Member of the Thesis Defense Jury of Dissertation “Detecció de biomarcadors de malalties infeccioses basades en partícules magnètiques” de Soledad Carinelli at the Autonomous University of Barcelona, September 2019
- member of the Evaluation Panel for COST Projects by the Swiss National Science Foundation.

Referee of international Journals

Sens.and Actuat. A Physical, Sens.and Actuat. B Chemical, Journal of Micromechanics Microeengineering, International Journal of Heat and Mass Transfer, Electrochemica Acta, Biosensors and Bioelectronics, Journal of Power Sources

Scientific publications

72 Scientific papers in Journals with total 1648 citations (without self-citations); h-index: 23 (Scopus). Patent applications: 13; Granted patents: 2

1. PhD period (2000-2003) Development of silicon-based radiation, gas and flow sensors

1. N.Sabate et al., *Sens.and Actuat. A Physical*, Vol.110 (2004) 282-288, Impact: 1.462,
2. N.Sabate et al., *Thin Solid Films*, Vol. 484 (2005) 328-333, Impact: 1.569.
3. N.Sabaté et al., *Sens.and Actuat. B Chemical*, Vol. 107-2 (2005) 688-694, Impact: 2.646.
4. N.Sabaté et al., *Sens.and Actuat. A Physical*, Vol.123-124 (2005) 584-589, Impact: 1.363.
5. N.Sabaté et al., *Sens.and Actuat. A Physical*, Vol.125 Iss.2 (2006) 260-266, Impact 1.434.

2.Post-doctoral period at IZM-Fraunhofer and University of Barcelona (2004-2006)

I joined the Micro and Nanorealiability team of IZM in 2004 and my contribution was key to develop a new technique for local measurement of residual stresses in semiconductor layers with a FIB equipment. After that I kept working at the University of Barcelona in microsystems reliability issues.

6. N.Sabate et al., *Applied Physics Letters*, Vol. 88 (2006) 071910–1-3, Impact: 4.127,
7. N.Sabate et al., *Nanotechnology*, Vol. 17 (2006) 5264-5270, Impact: 2.993
8. N.Sabaté et al., *J.Micromec. Microeng.* Vol.16 (2006) 254-259, Impact: 2.321.
9. N.Sabaté et al., *IEEE J.Microelec. Systems*, Vol.16-2 (2007) 365-372, Impact: 1.964.
10. N.Sabaté et al., *Microelec. Eng.*, Vol. 84 Iss.5-8 (2007) 1783-1787, Impact: 1.503.
11. J Cerdà, J.Manzano, J. Arbiol, A.Cirera, J Puigcorbé, N.Sabaté, et al., *Sens & Actuat. B Chemical*, Vol.114-2 (2006) 881-892, Impact: 2.331.
12. J.Cerdà, J.Puigcorbé, J.Arbiol, A.Vilà, J.R.Morante, N.Sabaté, et al., *Sen & Actuat.B Chemical*, 114-2 (2006) 826-835, Impact: 2.331.
13. A.M.Ruiz, I.Gràcia, N.Sabaté, et al., *Sens.and Actuat. A*, 135-1 (2007) 192, Impact: 1.348.
14. J.Keller, A. Gollhardt, D. Vogel, E. Auerswald, N.Sabaté,J. Auersperg and B. Michel, Materials Science Forum Vol. 524-525 (2006) 121-126

3. Post-doctoral period as leader of the microfuel cells team (2007- 2015)

I rejoined the IMB-CNM-CSIC at the end of 2006 to start a new research line from scratch. I started to develop silicon-based microfuel cells but then I started to explore the possibilities of all kind of materials, catalysts and applications of these devices to lab on a chip platforms. I highlight the following papers.

15. J.P. Esquivel, T. Senn, P. Hernandez, J. Santander, M.Loergen, S. Rojas, B.Loechel, N.Sabate *Towards a compact SU-8 micro direct methanol fuel cell,* Journal of Power Sources 195 (2010) 8110–8115 Impact: 4.283.
16. Garbayo, I., Tarancón, A., Santiso, J., Peiró, F., Alarcón-LLadó, E., Cavallaro, A., Gràcia, I., Cané, C., Sabate, N. *Electrical characterization of thermomechanically stable YSZ membranes for micro solid oxide fuel cells applications* (2010) Solid State Ionics, 181 (5-7), pp. 322-331. Impact 2.491.

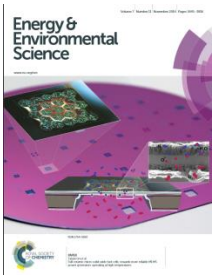
16. Esquivel, J.P., Castellarnau, M., Senn, T., Löchel, B., Samitier, J., Sabate, N. *Fuel cell-powered microfluidic platform for lab-on-a-chip applications* (2012) Lab on a Chip - Miniaturisation for Chemistry and Biology, 12 (1), pp. 74-79. Cited 12 times. Impact: 5.67. Work selected to illustrate the cover magazine. It was rated TOP10 paper by the journal's editor for being one of 10 most downloaded-papers in November 2011. Paper content was highlighted in different on-line journals such as Chemistry World, The Engineer, FuelCellsWorks, Hydrogen Fuel News, NILT and I-Micronews.

17. D.Dávila, J.P.Esquivel, N.Sabaté and J.Mas, *Silicon-based microfabricated microbial fuel cell toxicity sensor*, Biosensors and Bioelectronics, Vol.26 (5) (2011) 2426-2430. Impact: 5.5,.

18. A.S.Gago, Y.Gochi-Ponce, Y.J.Feng, J.P.Esquivel, N.Sabaté, et al. *Tolerant chalcogenide cathodes of membraneless micro fuel cells*, ChemSusChem 5 (2012) 1488-1494, Impact: 6.827,

19. González-Guerrero, M.J., Esquivel, J.P., Sánchez-Molas, D., Godignon, P., Del Campo, F.J., Giroud, F., Minteer, S.D., Sabate, N. *Membraneless glucose/O2 microfluidic enzymatic biofuel cell using pyrolyzed photoresist film electrodes* (2013) Lab on a Chip 13 (15), pp. 2972-2979. Impact: 5.69.

20.Esquivel J.P., Del Campo F.J., de la Fuente J.L., Rojas S. and Sabate N. *Microfluidic fuel cells on paper: meeting the power needs of next generation lateral flow devices (2014)* Energy and Environmental Science,. Impact factor 15.49. This work was highlighted as Editor's choice in SCIENCE journal's issue of 14 March 2014 and also in Chemistry World. It has also had impact on Spanish media (newspapers and radio).



21.I. Garbayo, D. Pla, A. Morata, L. Fonseca, N. Sabaté and A. Tarancón, *Full ceramic micro solid oxide fuel cells: towards more reliable MEMS power generators operating at high temperatures*. Energy and Environmental Science (2014) 7, 3617-3629. Impact factor 15.49. This paper was selected to illustrate the journal cover.

List of other scientific papers published in microfuel cells domain

22.J.P.Esquivel, N.Sabaté, et al., Microsystem technologies 14 (2008) 535-541, Impact: 1.229.

23.N.Torres, J.Santander, J.P.Esquivel, N.Sabaté et al., *Sens.and Actuat. B: Chemical*, 132 (2008) 540-544, Impact: 3.122.

24.N.Sabaté et al., *J. New Mat. Electrochem. Systems*, 11(2008) 143-146 Impact: 0.459.

25.D.Dávila, J.P.Esquivel, N.Vigués, O.Sánchez, L.Garrido, N.Tomás, N.Sabaté, FJ del Campo, FJ Muñoz and J.Mas, J.New Materials for Electrochemical Systems, 11 (2008) 99-10, Impact: 0.459

26.N.Torres, M. Duch, J. Santander, N.Sabaté, JP Esquivel, A. Tarancon and C.Cane, J.New Materials for Electrochemical Systems 12 (2009) 93-96, Impact: 0.292

27.Tarancón, N.Sabaté, et al., *J. Nanoscience Nanotechnology*, Vol.10-2 (2010) 1327-1337.

28.J.P.Esquivel, N.Sabaté et al., *J. Power Sources*, Vol.194 (2009) 391-396, Impact: 3.792.

29.J.P.Esquivel, N.Sabaté et al., *J.Micromec. Microeng.*19 (2009) 065006, Impact: 1.997.

30.Garbayo, A.Tarancón, J.Santiso, F.Peiró, E.Alarcón-LLadó, A.Cavallaro, I.Gràcia, C.Cané and N.Sabaté, *Solid State Ionics* 181(2010), 322-331, Impact: 2.491.

31.T.Senn, J.P.Esquivel, M.Lörgen, N.Sabate, B.Löchel, *J.Micromec. Microeng* .20 (2010) 115012, Impact: 2.276.

32. Ricard Prehn, Llibertat Abad, David Sánchez-Molas, Marta Duch, N.Sabaté, F. Javier del Campo, Francesc Xavier Muñoz, Richard G. Compton, J. Electroanalytical Chemistry 662 (2011) 361-370, impact: 2.905

33. T.Senn, Ch.Waberski, J.Wolf, J.P.Esquivel, N.Sabate, B.Löche, *Microelec.Eng* .88 (2011) 11-16.

34. T.Senn, J.P.Esquivel, N.Sabaté et al., *Microelec. Eng.* 88(9) (2011), 3043-3048, Impact: 1.569.

35. D.Dávila, A.Tarancón, D.Kendig, M. Fernández-Regúlez, N. Sabaté, et al., *Journal of Electronic Materials*, Vol.40(5) (2011) 851-855, Impact: 2.276.

36. Garbayo, G.Dezanneau, C.Bogicevic, J.Santiso, I.Gràcia, N.Sabaté, A.Tarancón, *Solid-State Ionics* 216 (2012) 64-68, Impact: 2.491.

37. F.M. Cuevas-Muñiz, M. Guerra-Balcázar, J.P. Esquivel, N. Sabaté et al. *J.Power Sources* 216 (2012) 297-303. Impact: 5.5

38. J.P.Esquivel, J.Colomer-Farrarons, M.Castellarnau, M.Salleras, F.J. del Campo, J.Samitier, P.Miribel-Català and N.Sabaté, *Lab on a Chip* 12 (2012) 4232-4235, Impact: 5.67.

39. D.Sánchez-Molas, J.P.Esquivel N.Sabaté, F.X.Muñoz and F.J.del Campo, *Journal of Physical Chemistry* C 116 (2012) 18831-18846, Impact: 4.814

40. Déctor, A., Esquivel, J.P., González, M.J., Guerra-Balcázar, M., Ledesma-García, J., Sabaté, N., Arriaga, L.G*. Electrochimica Acta*, 92 (2013) pp. 31-35 , Impact: 4.086

41. Verjulio, R.W., Alcaide, F., Álvarez, G., Sabaté, N., Torres-Herrero, N., Esquivel, J.P., Santander, J.
42. *Journal of Micromechanics and Microengineering* 23 (2013) 115006 Impact: 1.725

43. Verjulio, R.W., Santander, J, Sabaté, N., Esquivel, J.P., Torres-Herrero, N., Habrioux, A., Alonso-Vante, N. *International Journal of Hydrogen Energy* 39 (2014) 5406-5413 Impact: 2.930

44. Moreno-Zuria, A., Dector, A., Cuevas-Muñiz, F.M., Esquivel, J.P., Sabaté, N., Ledesma-García, J., Arriaga, L.G., Chávez-Ramírez, A.U. *Journal of Power Sources* 269 (2014) 783-788, Impact: 5.211

45. Fernández-González, R., Hernández, E., Savvin, S., Núñez, P., Makradi, A., Sabaté, N., Esquivel, J.P., Ruiz-Morales, J.C. *Journal of Power Sources* 272 (2014) 233-238, Impact: 5.211

46. Arjona, N., Dector, A., Guerra-Bálcazar, M., Álvarez-Contreras, L., Sabaté, N., Esquivel, J.P., Ledesma-García, J., Arriaga, L.G. *RSC Advances* 4 (2014) 26158-26165, Impact: 3.708

47. Garbayo, I., Esposito, V., Sanna, S., Morata, A., Pla, D., Fonseca, L., Sabaté, N. Tarancón, A. J. *Power Sources* (2014) 248, 1042-1049. Impact: 5.5

48. N.Sabaté et al. *Microsystem Technologies* 20 (2014) 341 – 348. Impact:0.45

<u>List of other scientific papers related to collaboration in gas sensors (subject of my PhD thesis)</u>

49. R. Rubio, J. Santander, L. Fonseca N.Sabaté, I. Gràcia, C. Cané, S. Udina and S. Marco, *Sensors and Actuators B: Chemical* Vol.127-1 (2007) 69-73, Impact: 2.934

50. P. Ivanov, F. Blanco, I. Grácia, N.Sabaté, A. Ruiz, X. Vilanova, X. Correig, L. Fonseca, E. Figueras, J. Santander and C.Cané, *Sensors and Actuators B: Chemical* Vol. 127-1 (2007) 288-294, Impact: 2.934
51. L. Fonseca, J. Santander, R. Rubio N.Sabaté, E. Figueras, M. Duch, I. Gràcia and C. Cané

52. *Sensors and Actuators B: Chemical* Vol. 130-1 (2008) 538-545 Impact: 3.122

53. I. Gràcia, P. Ivanov, F. Blanco N.Sabaté, X. Vilanova, X. Correig, L. Fonseca, E. Figueras, J. Santander and C. Cané, *Sensors and Actuators B: Chemical* Vol.132-1 (2008) 149-154 Impact: 3.122

54. I. Gràcia, P.Ivanov, F.Blanco, N.Sabaté, X.Vilanova, X.Correig, L. Fonseca, E. Figueras, J. Santander and C. Cané*, Sensors & Actuators: B. Chemical* 132-1 (2008) 149-154 Impact: 3.122

55. L .Fonseca, R. Rubio, J. Santander, C. Calaza, N.Sabaté, P. Ivanov, E. Figueras and C.Cané.*Sensors and Actuators, B: Chemical* 141 (2009), pp. 396-403 Impact: 3.083

56. R.Cumeras, I.Gracia, E.Figueras, J.Santander, L.Fonseca, M.Salleras, C.Calaza, N.Sabaté and C.Cané P*rocedia Engineering* (2011) 5 1236-1239

57. R.Cumeras, I.Gracia, E.Figueras, J.Santander, L.Fonseca, M.Salleras, C.Calaza, N.Sabaté and C.Cané *Journal of Mathematical Chemistry* 50 (2012) 359-373, Impact: 1.266

58. R.Cumeras, I.Gracia, E.Figueras, J.Santander, L.Fonseca, M.Salleras, C.Calaza, N.Sabaté and C.Cané *Sensors and Actuators B* 170 (2012) 13-20, Impact: 3.79

59. Calaza, C., Salleras, M., N.Sabaté, Santander, J., Cané, C., Fonseca, L., *Microsystem Technologies* 18 (2012) 1147-1154, Impact: 0.45

4. ICREA Professorship and leader of the Self-powered engineered Devices group (2016-2019)

60. Maria José González-Guerrero, F. Javier del Campo, Juan Pablo Esquivel, Fabien Giroud, Shelley D. Minteer, Neus Sabaté, Paper-based enzymatic microfluidic fuel cell: From a two-stream flow device to a single-stream lateral flow strip, Journal of Power Sources (2016) 326, 410–416. Impact factor 6.33

61. D. Pla, M. Salleras, A. Morata, I. Garbayo, M. Gerbolés, N. Sabaté, N. J. Divins, A.Casanovas, J. Llorca and A.Tarancón, Standalone ethanol micro-reformer integrated on silicon technology for onboard production of hydrogen-rich gas,Lab on a Chip, 2016,16, 2900-2910. Impact factor 5.59

62. J.P. Esquivel, J.R. Buser, C.W. Lim, C. Domínguez, S. Rojas, P. Yager, N. Sabaté, Single-use paper-based hydrogen fuel cells for point-of-care diagnostic applications, Journal of Power Sources (2017) Vol. 342, pp.442-451 Impact factor 6.33

63. Maria José González-Guerrero, F. Javier del Campo, Juan Pablo Esquivel, Dónal Leech, Neus Sabaté 2017, 'Paper-based microfluidic biofuel cell operating under glucose concentrations within physiological range', Biosensors and Bioelectronics (2017),Vol.90, pp. 475–480 Impact factor: 7.47

64. JP.Esquivel, P.Alday, O. Ibrahim, B.Fernandez, E.Kjeang and N.Sabate, A metal-free and biotically degradable battery for portable single-use applications, Advanced Energy Materials (2017) 7 (1700275) Impact factor: 15.2

65. Ibrahim, O.A., Alday, P., Sabaté, N., Esquivel, J.P., Kjeang, E. Evaluation of redox chemistries for single-use biodegradable capillary flow batteries (2017) Journal of the Electrochemical Society, 164 (12), pp. A2448-A2456.

66. del Torno-de Román, L., Navarro, M., Hughes, G., Esquivel, J.P., Milton, R.D., Minteer, S.D., Sabaté, N. Improved performance of a paper-based glucose fuel cell by capillary induced flow (2018) Electrochimica Acta, 282, pp. 336-342.

67. Montes-Cebrián, Y., del Torno-de Román, L., Álvarez-Carulla, A., Colomer-Farrarons, J., Minteer, S.D., Sabaté, N., Miribel-Català, P.L., Esquivel, J.P. 'Plug-and-Power' Point-of-Care diagnostics: A novel approach for self-powered electronic reader-based portable analytical devices (2018) Biosensors and Bioelectronics, 118, pp. 88-96.

68. Dector, D., Olivares-Ramírez, J.M., Ovando-Medina, V.M., Sosa Dominguez, A., Villa, A.L.,Duarte-Moller, A., Sabaté, N., Esquivel, J.P., Dector, A. Fabrication and evaluation of a passive SU8-based micro direct glucose fuel cell (2019) Microsystem Technologies, 25 (1), pp. 211-216.

69. Olivares-Ramírez, J.M., Dector, A., Bañuelos-Días, J.A., Amaya-Cruz, D.M., Ortiz-Verdín, A.,Jiménez-Sandoval, O., Sabaté, N., Esquivel, J.P. Evaluation of a Passive Anion-Exchange Membrane Micro Fuel Cell Using Glycerol from Several Sources (2019) Fuel Cells, 19 (1), pp. 10-18.

70. Ortega, L., Llorella, A., Esquivel, J.P., Sabaté, N. Self-powered smart patch for sweat conductivity monitoring (2019) Microsystems and Nanoengineering Nature, 5 (1), art. no. 3 Impact factor: 5.07

https://www.elpais.com.uy/vida-actual/parche-diagnostica-fibrosis-quistica.html
https://www.eldiario.es/tecnologia/Crean-especie-diagnosticar-fibrosis-quistica_0_870713079.html

71. Perla Patricia Alday, Sandra Cerqueira Barros, Raquel Alves, J. M. S. S. Esperança, Marina Navarro-Segarra, Neus Sabaté, Maria Manuela Silva & Juan Pablo Esquivel, Biopolymer Electrolyte Membranes (BioPEMs) for sustainable primary redox batteries (2019), Advanced Sustainable Systems https://doi.org/10.1002/adsu.201900110

72. Anna Llorella, Marina Navarro-Segarra, Irene Merino-Jiménez, Juan Pablo Esquivel & Neus Sabaté Electro-fluidic timer for event control in paper-based devices (2019), Microfluidics and Nanofluidics 24: 10.
https://doi.org/10.1007/s10404-019-2313-z

Patent applications

[PAT1] N.Sabaté, et al. WO2005036157-A1, October 2003 (Granted).

[PAT2] J.P.Esquivel, N.Sabaté, et al. WO2009153380, June 2008.

[PAT3] J.P.Esquivel, T.Senn, M.Lörgen, N.Sabaté and C.Cané, EP10153537.5 February 2010.

[PAT4] J.P.Esquivel, N.Sabaté, et al. ES2372755, July 2010.

[PAT5] A.Tarancón, D.Dávila, N.Sabaté, et al. PCT/ES2011/070215, March 2011.

[PAT6] T.Senn J.P.Esquivel, N.Sabaté, M.Lörgen EP10194892.5 December 2010.

[PAT7] N.Sabaté and J.P.Esquivel PCT/EP2013/062718 (ES201230960) and 13/589.244 (USA) (Granted)

[PAT8] J.P.Esquivel, N.Sabaté, F.J.Del Campo and J.Buser ES201430145, February 5, 2015.

[PAT9] J.P.Esquivel, O.Ibrahim, E.Kjeang and N.Sabaté, EP15200865, December 2015

[PAT10] L.Ortega Tañá, A.Llorella Bustins, JP Esquivel Bojórquez, N Sabaté Vizcarra, A device and method for sensing conductivity of a fluid EP18382158, 12 Mar, 2018

[PAT11] Juan Pablo Esquivel Bojórquez, Neus Sabaté Vizcarra and Sergi Gassó Pons, A method for controlling timing of events in a microfluidic device and a timer microfluidic device, EP18382329 30 May 2018

[PAT12] N.Sabaté, J.P.Esquivel, M.Castellarnau, S.Gassó A multi-layered band and a method for manufacturing a multi-layered band, EP18382330, 14 May 2018

[PAT13] Merino Jimenez, Irene; Llorella Bustins, Anna; Esquivel Bojórquez, Juan Pablo; Sabaté Vizcarra, Neus, Navarro Segarra, Marina; Sailapu, Sunil Kumar, Procedimiento de cuantificación de la concentración de analitos en una celda electroquímica, P201930320, 9 April 2019

Invited talks in conferences as a speaker

C1. N.Sabaté et al., Confined residual stress measurements on thin films deposited onto thick substrates with a FIB equipment MicroNanoreliability 2007 Conference 1st International Congress on Microreliability and Nanoreliability in Key Technology Applications, Berlin (Germany) Date: 2-5 September 2007

C2. N.Sabaté et al., Micro Fuel Cells, from portable applications to MEMS devices, Energy Scavenging Workshop – EADS, Munich (Germany) Date: 23 April 2008

C3. N.Sabaté et al., Residual stress measurements on thin films with a Focused Ion Beam equipment. The 8th International Conference on Residual Stresses, Denver, Colorado (EEUU) Date: 4-8 August 2008

C4. N.Sabaté et al., Microfuel cells: can we take them to a succesful market? 226th Meeting of the Electrochemical Society, Cancún, México. Date 7th October 2014

C5 N.Sabaté et al., Powerpad: Non-Toxic Capillary-Based Flow Battery for Single Use Applications, Science for Solving Society's Problems Challenge: Grant Winners Session 229th Electrochemical Society Meeting San Diego USA 31/May/2016 ·

C6 N.Sabaté, Single use paper fuel cells, CIMTEC 2016 5th International Conference "Smart and Multifunctional Materials, Structures and Systems" Italy 09/Jun/2016

C7 N.Sabaté, Paper-Based Fuel Cells and Batteries as Sustainable Power Sources for a New Generation of Disposable Analytical Devices, 67th Meeting of the International Society of Electrochemistry, Netherlands 25 August 2016

C8· N.Sabaté, Single-use paper fuel cells and batteries for disposable Point-of-Care devices, Smart Systems Integration Conference 2017, Ireland 08/Mar/2017

C9. N. Sabaté Paper-based fuel cells for autonomous screening tests**,** VIII International Congress on Analytical Nanoscience and Nanotechnology - NyNA 2017 (Spain) 4 Jul, 2017

C10. N.Sabaté**,** Fuel cells as key components for the next generation of autonomous diagnostic devices, 17th International Meeting on Chemical Sensors (Austria) 16 Jul, 2018

C11. N.Sabaté, Activities related to Organic Electronics at IMB-CNM-CSIC, Organic Electronics Association Annual Meeting, Robinson College, Cambridge (UK - United Kingdom), 10 Oct, 2017

C.12 N.Sabaté, Enzyme catalysis and Energy Generation for Single-Use Autonomous Sensors in Diagnostics, Keynote at World Chemistry Forum 2019, Barcelona, Spain 24 May, 2019

C.13 N.Sabaté, Single-use electrochemical power sources on paper, The Armourers and Brasiers' Cambridge Forum, Pippard Lecture Theatre, Department of Physics, Cavendish Laboratory, Cambridge, UK 18 June 2019

Invited talks in research institutions & academic and industrial forums

I1. A.Tarancon and N. Sabaté, Fabrication and characterization of micro Solid Oxide Fuel cells Department of Nonmetallic and Inorganic Materials, ETH-Zurich Date: 1st March 2010.

I2. J.P.Esquivel and N.Sabaté, Polymer-based micro fuel cells.
Department of Micro- and Nanosciences, Aalto University, Helsinki Date: 4 March 2011

I3. N. Sabaté and J.Santander, Microfuel cell activities at IMB-CNM Laboratoire de Catalyse en Chimie Organique, Universidad de Poitiers Date : 5 June 2011.

I4. N.Sabaté, How in my way to the market I came across an ERC Grant, ICMAB-CSIC Barcelona, Date : 20 June 2015

I5.Participation at the round table “10 anys del Parc de Recerca UAB” 26 May, 2017

I6. From Science to Business Course Welcome Session at BIST (IRB), 29 May 2017 Jordi Carrera (CEO, STAT Diagnostica), Carles Puente (Co-founder and Vice President Innovation, Fractus Antennas), Neus Sabaté (CEO, Fuelium), and Teresa Tarragó (CEO, iProteos).

I7. Barcelona on the Frontiers of Science, General Assembly of Barcelona Global, July 2017 Elisabeth Engel from IBEC, ICREA professor Neus Sabaté from the Institute of Microelectronics of Barcelona IMB-CNM, Ignasi Ribas, director of the Institute of Space Studies of Catalonia (IEEC), and Roger Espasa, CEO & Founder of SemiDynamics Technology Services.

I8. Barcelona & Catalonia Start-Up Hub, Round table with 19 Oct, 2017, Camp Nou (F.C.Barcelona) https://www.youtube.com/watch?v=354Qs65abvo

I9. N.Sabaté, Introduction to Entrepreneurship for PHD Students: successful cases of research transfer, 12 Jul, 2018, Parc de Recerca de la UAB , Spain

I10. Bateries i piles de combustible de paper: l’energía neta del futur - Els dissabtes de la Física a la UAB. March 2018 Universitat Autònoma de Barcelona, Spain

I11. Start-ups que generen tecnologia al sector de la salut", Jornada sobre solucions innovadores circulars per a empreses en el sector salut - ACCIO (Spain) July 2018

I12. Paper batteries:how life and potatos can inspire a scientist, Talk at the Opening Ceremony of the Barcelona International Youth Science Challenge, La Pedrera, Barcelona 10th July 2018

I13. Las científicas cuentan: el Proyecto SUPERCELL. Vila Urània, Barcelona 18th September 2018

I14. Las científicas cuentan: round table about being a woman scientist, Delegación del CSIC en Catalunya, 21st September 2018

I15. Single-use biodegradable power sources for portable devices, invited talk at the event “Spain, a success story in EU Science and Innovation Program”, 2nd October 2018, Brussels, Belgium

I16. From Science to Business 2019 - Welcome event, The Barcelona Institute of Science and Technology (BIST), Discussion panel, Barcelona 27 May, 2019

I17. How I became an ICREA Professor, Encontro de Mulleres Científicas. Cómo conseguir motivar vocaciones científicas e reter talento, 11 de diciembre, 2019, Vello Cárcere, Lugo

Project funds as PI

PR1. SENSATION FP6 Project subcontracted IMB-CNM-CSIC to develop silicon microfuel cell devices
Funding partner: University of Barcelona Duration: from Jan. 2006 to Dec. 2007
IP: Carles Cané Ballart Amount: 54.000 Euros

PR2. MPILA – Development of monolithical micro fuel cells based on silicon technology (Ref. TEC-2007-64669)
Funding institution: Spanish Ministry of Science Duration: from Oct. 2007 to Sept. 2009
IP: Neus Sabaté Vizcarra Amount: 145.000 Euros

PR3. MICAELA – Microtechnology-based fuel cells for ambient intelligence and low power applications (Ref. TEC2009-14660-C02-01)
Funding institution: Spanish Ministry of Science Duration: from Jan. 2010 to Dec.2012
IP: Neus Sabaté Vizcarra Amount: 231.836 Euros

PR4. DADD2- Dispositivo Autónomo Desechable para el Diagnóstico de la Diabetes (Ref.TEC-2013-48506-C3-1-R)
Funding institution: Spanish Ministry of Economy and Competitivity Duration from 01/14 to 12/16
IP: (1) Javier del Campo García y (2) Neus Sabaté Vizcarra Amount:142.276 Euros

PR5. POWERPAD: A biotic degradable redox battery for poor-resource settings
Duration: October 2014 to October 2015
Funding institution: Bill and Melinda Gates Foundation
IP: Neus Sabaté Amount: 50.000 dollars

PR6. SUPERCELL - Single-use paper fuel cells (ERC Consolidator Grant)
Funding institution: European Research Council Duration: from July 2015 to June 2020
IP: Neus Sabaté Vizcarra Amount: 1.920.000 Euros

PR7. D2PATCH - Pegat Digital d'un sol ús per a la monitorització de la deshidratació
Funding institution: AGAUR – Programa PRODUCTE 2018 Duration: from May 2019 to August 2020
IP: Neus Sabaté Vizcarra Amount: 88.000 Euros

PR8. ECOTAGS - Self-triggered ECObattery TAGS for instant and ubiquitous event detection
Funding institution: CERN – ATTRACT projects Duration: from June 2019 to May 2020
IP: Neus Sabaté Vizcarra Amount: 100.000 Euros (39.000 Euros for Sabate's team)

PR9: POWER-PATCH: Self-powered skin patch for cystic fibrosis diagnosis (ERC-Proof of Concept)
Funding institution: European Research Council Duration: July 2019-December 2020
IP: Neus Sabaté Vizcarra Amount: 150.000 Euros

PR10. On Paper Battery for Innovative Rapid Diagnostic Tests
Funding institution: Bill and Melinda Gates Foundation Duration: November 2019- February 2020
IP: Neus Sabaté & Juan Pablo Esquivel Amount: 250.000 Dollars (38.000 for Sabate´s group as subgrantee)

Participation in other research projects (as team member)

Institution	Identifier	Duration	Amount
Catalan Regional Goverrment	Detección de radiaciones ionizantes mediante capas delgadas sensibilizadas de SiO_2.	01/97-12/99	15 KEuros
Spanish Ministry of Industry	Microsistemas para la medida del flujo de aire en aplicaciones de aire acondicionado.	01/00-12/01	25 KEuros
Spanish Ministry of Science	MIGRA- Gravimetric microsensors for VOC detection.	11/01-10/04	200 KEuros
FP6 Project -IP	GOODFOOD: Safety and Quality Assurance with Microsystems.	01/04-12/07	300 KEuros
Spanish Ministry of Science	CROMINA: Desarrollo de un cromatógrafo de gas basado en micro y nanotecnologías.	12/04-11/07	200 KEuros
EUREKA/EURIMUS Project	MICROBOILER: Microsytem for an efficient and low emission combustion in Boilers.	06/99-12/02	216 KEuros
FP6 Project SSA	MINOS-EURONET: Micro-Nano Systems European Network.	06/05-05/08	35 KEuros
Spanish Ministry of Science	MAGASENS: Síntesis de nanomateriales y estudio de su interacción con diferentes gases para su aplicación en dispositivos sensores.	12/05 -11/08	98 K Euros
Spanish Ministry of Science	NANOTERM: Estudio de la viabilidad de microgeneradores termoeléctricos basados en nanohilos de silicio.	07/09-08/10	52 K Euros
Spanish Ministry of Science	MINAUTO: Micro y nanotecnologías para la miniaturización de dispositivos de generación, recolección, gestión y almacenamiento de energía en aplicaciones sub-watt	01/16-12/19	165KEuros

Personnel Grants under my supervision

OG1. APPOCS. At EU level, one of my PhD students was granted with a Marie Curie 2+1 grant entitle "Autonomous Paper-based Point Of Care Smart System APPOCS FP7-PEOPLE-2012-IOF" to stay with a team of the University of Washington that has a strong expertise in paper microfluidics.
Duration: 07/2013-07/2016.

OG2. P-SPHERE Marie Curie Cofund Program (2.5 years) to Irene Merino Jimenez as Postdoc to stay in SPEED Research Group at IMB-CNM
Duration: 03/2018-08/2020

OG3. TECNIOSPRING Grant 2019 “Self-powered single use smart ion sensing platform” obtained by one of my postdocts Sunil Kumar Sailapu to start a collaboration with University of Geneva and be back to IMB-CNM for one year
Duration: 09/2019 to 09/2021

Outgoing Grants

OG2. Catalan Regional Government granted me with a Postdoctoral research stay at Fraunhofer-IZM for 12 months. I enjoyed it from October 2004 till September 2005.

Distinctions and awards

1. *Cum Laude Distinction* in PhD Degree in Physics, Universitat de Barcelona, November 2003

2. The development of FIBDAC technique published in papers CV2 and CV3 took part of the Fraunhofer Prize 2005 received by the staff members of the research group. (Dr.Sabaté led the research as stated by all the papers published as first-author [CV2,CV3,CV15-17]).

3. One of Dr.Sabate's students was awarded with the TR35 Mexico Award given by the MIT Technology Review to the ten most promising young mexican researchers in 2012 due to the contents of his PhD research.

4. 50,000 $ prize to the fuel cell redox paper fuel cell concept as promising technology in poor-resource settings. "Water and Energy Summit" sponsored by the Melinda and Bill Gates Foundation at the Electrochemical Society Conference in Mexico, 4-8 October 2014
http://www.ecsblog.org/announcements/meetings/its-the-shark-tank-treatment-for-these-scientists/

5. Best Prototype/New Product 2018 from the Organic Electronics Association Contest to the "Self-powered patch for cystic fibrosis diagnostics" presented by N.Sabaté team (https://oe-a.org/viewer/-/v2article/render/26622755)

6. Best Prototype/New Product 2019 from the Organic Electronics Association Contest to the "Fully printable single use self-powered glucometer" presented by N.Sabaté team (https://oe-a.org/viewer/-/v2article/render/30330399)

Entrepreneurship

On September 2015, Sabaté co-founded FUELIUM SL, a spin-off that develops paper-based batteries for the in-vitro diagnostic sector.
This business idea was awarded in the 4th edition of El Fondo de Empredendores de Repsol as one of the best business ideas and was selected to be incubated in its 5th edition as one of the most promising spin-offs in the Spanish energy sector.
More info at www.fuelium.tech

Neus Sabaté receiving Repsol award for Fuelium spin-off project (second right)