

# SHORT CV ELVIRA FORTUNATO

(2016)

## PERSONAL INFORMATION

**Fortunato, Elvira**, Nationality: Portuguese; Date of birth: 22 July 1964

Research ID: [ORCID](#); [Google Scholar](#) (h-index = 56, from GS)

## EDUCATION

**Habilitation** in Microelectronics & Optoelectronics, FCT-UNL (2005); **Ph.D.** in Microelectronics and Optoelectronics, FCT-UNL (1995); **MSc** in Semiconductor Materials FCT-UNL, (1991); **Engineering** Diploma in Materials Science & Physics UNL (19987).

## CURRENT POSITIONS

**Full Professor** at FCT-UNL, (2012-...); **Director** of the Associate Laboratory I3N (The only Portuguese research centre (1998-...) classified as Exceptional in the Advanced Materials and Nanotechnologies area in the last national evaluation); **Invited Professor** at Universidade Federal de Lavras, Brazil (2013-...).

## PREVIOUS POSITIONS

**Associate Professor**, FCT-UNL, Portugal (1998-2011); **Assistant Professor**, FCT-UNL, Portugal (1995-1998)

## SELECTED AWARDS

**2016** Blaise Pascal Medal by the European Academy of Sciences in the area of Materials Science.

**2016** Finalist for the European Inventor Award 2016 with Prof. Rodrigo Martins with the work on paper electronics.

**2015** Selected by the Portuguese President of Republic to be the President of the National Day (10 June) with the duty to speak about Science, Innovation and New Opportunities.

**2014** Gold Medal from the Municipality of Alcanena/Portugal; Honourable Mention in the area of Research by FCT-UNL/Portugal; Honourable Mention in the area of Extension by FCT-UNL/Portugal.

**2012** Scientific Prize of City of Almada, 1st edition/Portugal; Prize Green Awards, Lab-on-Paper/Portugal; Prize Innovation with the work solar tiles, Energy Live Expo, Lisbon/Portugal

**2011** Nominated Körber European Science Award 2011 (short list 8), Koerber Foundation/Germany.

**2010** Order of "Infante D. Henrique, attributed by the President of the Portuguese Republic/Portugal; JID best paper award 2010 from Korean Information Display Society; Gold Mercury Sustainability Personality of the Year/Italy.

**2009** Unanimous congratulatory vote by the Portuguese Parliament for her scientific career; The Research and Technology 2008-09 award, from the Rotary 1960 District/Portugal; Person of the Year 2009, Association for Multimedia and Digital Society/Portugal; 1st place in "Green Awards 2009" for the paper transistor work; Elected honorary member of the Rotary Club of Almada/PT; EU Women Inventors & Innovators Network: Transparent Electronics and Paper-e/Finland; Doctor Honoris Causa by Galati University/Romania; IDTechEx Printed Electronics USA 2009 Academic R&D award/USA.

**2008** Prize "Seeds of Science" in the field of Science and Engineering/Portugal; Professional of the Year 2008, by the Rotary Club of Costa Caparica/Portugal; Innovation 2008 prize, from Exame Informática magazine/Portugal.

## INSTITUTIONAL RESPONSIBILITIES

**Vice-Chair of the High Level Group-SAM** from EC (2015-...); **Deputy Director** of FCT-UNL (2014-...); **Coordinator** of Research Centers of FCT-UNL (2006-...); **Member of the Executive Board** of the Materials Science Department (2009-...); **Coordinator** of the Doctoral Programme in Nanosciences and Nanotechnology, FCT-UNL (2009-...); **Member of the Scientific Committee** of the PhD Program in Biomaterials (UFLA, Brasil) (2014-...). Participation in several academic examination referees board (PhD juries in and abroad Portugal).

## COMMISSIONS OF TRUST

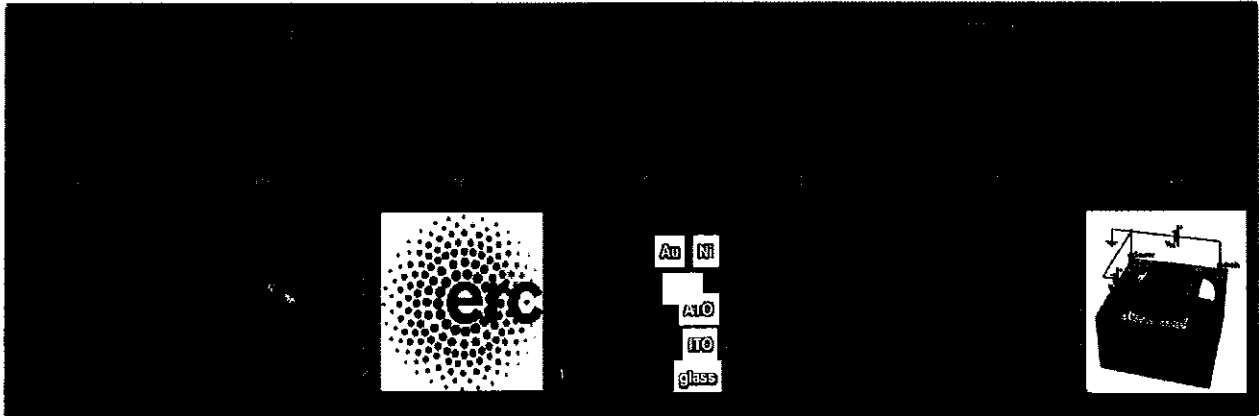
**Nominated by the Presidency** House for the committee of Portuguese Orders of Honour (2011-2016 and 2016-2020); **Member of the:** EC advisory board of: CONNECT Forum (2013-2015); H2020 ad hoc AG Spreading Excellence and Widening Participation (2013-2015); **Trustees of Luso-American Development Foundation/Portugal-USA (2013-2020)**; Social Council of Universidade Lusíada/Portugal (2014-2018); Scientific Council of the TICE.PT/Portugal (2009-...); Scientific Council for Exact Sciences and Engineering from FCT-MEC (2008-2012); grant panel in Nanotechnologies from FCT-MEC (2013-2014) and in Materials Science and Engineering, FCT-MCTES (2004-2011); **Monitor** FP7 604391 GRAPHENE (Unit C4 Flagships - GRAPHENE pool, 2014-2020); Scientific Council of "Fundação Francisco Manuel dos Santos" (2012-...); National Scientific and Technological Council (CNCT). (2012-2016); **Co-Editor** of Europhysics Letters (EPL) (2011-...); **Associate editor** of Physica Status Solidi Rapid Research Letters, Wiley since 2007 (2007-...); **Guest editor** in: Journal of Non-Crystalline Solids (2006; Thin Solid Films (2007, 2008); Physica Status Solidi a) (2008-Wiley) (2008). **Evaluator of projects** and research centres from different Research Agencies (USA National Science Foundation; Romanian Agency for Quality Assurance in Higher Education; Program Thalís Greek Ministry of Education; Swedish Foundation for Strategic Research; Swiss National Science Foundation; Fonds National de La Recherche Luxembourg; European Science Foundation; Science Foundation Ireland; Technology Foundation from Netherlands; National centre from Poland, Agency for Science, Technology and Research, Singapore.

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

Member of the Portuguese Engineering Academy (2009); 1990 – Member of the Portuguese Professional Engineering Association (1990); Member of the: Materials Research Society (1987); Portuguese Materials Society (1990).

## OTHER ACHIEVEMENTS

As can be taken from my CV I have a fruitful career, translated in: creating new scientific concepts; to innovate technology; coordinating multidisciplinary research; teaching and supervising research (17 Postdocs, 11 abroad; 27 PhD, 9 abroad; 35 master students, 10 abroad); coordinating or being direct responsible of national and international projects (37, from which my group earned a total budget of 12.4 M€, where 75% corresponds to International funding, including the advanced ERC grant obtained in the first edition); to disseminate and communicate science and to contribute for a new policy for science and technology, inside Portugal or abroad, as can be taken from my involvement in commission of trusts and Academic associations. This is translated in chairing large conferences (7), organizing symposia in key areas (12), to publish more than 500 papers, granted 49 patents (from which I would highlight the ones we share with SAMSUNG and ETRI) and 20 pending,



covering the fields of advanced functional materials, energy, biotechnology/life sciences, microelectronics, optoelectronics, electronics, with publications in top 10. This broad range of activities in which my research team is involved is inline with my philosophy that more and more science requires multidisciplinary and interdisciplinary teams, covering not only the area of science and technology, but also the social/humanities, once we must know/determine the impact of what we do and how citizens see and accept research. This makes my laboratory to acquire a world-class reputation. Concerning science I pioneer world wide transparent electronics and paper electronics. The sketch above shows the main milestones related to such achievements that make me to be heard by the world scientific community, well translated by more than 50 plenary talks and 30 contributions in summer schools open to students and citizens I gave in the last 10 years (for instance, in 2015 I was invited to give more than 20 plenary/invited talks and to be involved in 4 summer schools) for specialised and non specialised audience. In line with this international recognition I have to mention my talk at the Falling Walls Conference held in Berlin, a one-day scientific conference with the objective to show to a broad audience the research work of international top scientists coming from different fields, as humanities, economics, laws, science and technology. Moreover, this vision of science as a whole and made to serve the society, makes me to be attracted by media to give my opinion about how science and technology could be move as a way to serve citizens for the next paradigm of economic growth knowledge based (going from creativity to innovation concepts) and so contributing to promote progress of countries.

Connect to my vision of future and to my ERC grant, I would like to highlight that in 2011 the Nanofabrication Laboratory was inaugurated by the President of the Portuguese Republic, and selected by ERC as a success story. This laboratory is now a reference not only in Portugal but also in the world since then our experimental capacity was dramatically improved specially in the area of nanocharacterization and nanofabrication. **This is a unique structure build with competitive funds in Portugal.** Besides the media impact at an international and national level, I got several social and scientific awards (see part A), not only connected to the specified field of my research but also due to my commitments to bring science and technology to all as it is the case of belonging to the Portuguese Academy Engineering, getting the Honoris Causa degree from Galati University, to be honoured with the Order of Infante D. Henrique by Portugal (degree: "grande oficial"), to get the Gold Medal from the Municipality of Almada and Alcanena, and, above all, to be selected in 2015 by the president of Portugal to be the chair of the National day of Portugal having as topic Science and Technology, the highest distinction to which a Portuguese can strive for; to be selected by the Presidency House as a member of the committee of Portuguese Orders of Honour connected to science and technology.

I also would like to highlight that I have a strong experience in public communication of science, translated in several public interventions for a multifaceted public, as it was the speech Commemorative Session of the Day of Portugal, for the Portuguese worldwide diaspora, involving more than 20 million citizens worldwide; data analytics and visualization, as taken from my involvement as member of the Portuguese Council of Science and Technology or in the Horizon 2020 advisory boards, which also includes legislative processes dealing with the strategy and vision of future, going from ideas to practical things.

## 1. Personal data

**ELVIRA M.C. FORTUNATO**

Born 22 July 1964, Almada, Portugal, Married | one daughter.

## 2. Affiliation

**CENIMAT|I3N – Centro de Investigação de Materiais | Laboratório Associado – Instituto de Nanoestruturas, Nanofabricação e Nanomodelação**

Departamento de Ciência dos Materiais, FCT/UNL

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## 3. Education and degrees

- 2005 Habilitation in Microelectronics and Optoelectronics, New University of Lisbon, Portugal. Thesis title: "Thin Film Transistors based on ZnO thin films";
- 1995 Ph.D. in Microelectronics and Optoelectronics, New University of Lisbon, Portugal. Thesis title: "Large area thin film position sensitive detectors based on a-Si:H";
- 1991 MSc in Semiconductor Materials, New University of Lisbon, Portugal. Thesis title: "Determination of the Density of States of a-Si:H by Space Charge Limited Currents";
- 1987 Diploma in Materials Science and Physics, with Microelectronics specialization, UNL, Portugal.

## 4. Awards and Honors

### Before 2008

- 1993 Honorable Mention from "Prémio Anímee de Inovação e Criatividade" for the work: *Position Sensitive Detector based on Amorphous Silicon*, ENDIEL'93.
- 1993 Honorable Mention from "Prémio Anímee de Inovação e Criatividade" for the work: *Development and characterization of crystalline Si photodiodes*, ENDIEL'93.
- 1997 Honorable Mention from "Prémio Anímee de Inovação e Criatividade" for the work: *3D linear PSD based on amorphous silicon*, ENDIEL'97.
- 1999 Elected as one of the 12 young's Portuguese Scientists, with more scientific publications in Portugal from "Público" newspaper.
- 2002 Distinguished by Frost & Sullivan with the work on oxide transparent conductors deposited on plastic substrates (<http://www2.uninova.pt/cemop/newsroom/december2002/frost.php>).
- 2005 MCTES-FCT award for Scientific Research Excellence.
- 2007 City of Almada Gold Medal for Scientific Achievements.
- 2007 Elected member of the Academia de Engenharia.

### 2008

- Research Prize awarded by "O Ribatejo" newspaper.
- Prize "Seeds of Science" in the field of Science and Engineering by "Ciência Hoje".
- Professional of the Year 2008, by the Rotary Club of Costa de Caparica.
- Innovation 2008 prize, from *Exame Informática* magazine.

### 2009

- Granted a congratulatory vote by the Portuguese Parliament, with unanimity and acclaim, for the quality of her scientific career.
- The Research and Technology 2008-09 award, from the Rotary 1960 District.
- Person of the Year 2009, by the APMDS
- Elected "Mulheres de Vermelho" pela Fundação Portuguesa de Cardiologia.
- First place in the "Green Awards 2009" for her work on the paper transistor.
- Elected honorary member of the Rotary Club of Almada, the highest distinction of the Rotary.
- She was commended by the European Union Women Inventors & Innovators Network with a special award of scientific recognition for Transparent Electronics and Paper-e, Finland.
- Doctor Honoris Causa by Galati University, Romania.
- IDTechEx Printed Electronics USA, 09 Academic R&D award for the work on Paper-e®.

### 2010

- Order of Infante D. Henrique, degree: "grande oficial", attributed by the President of The Portuguese Republic, during the solemn Ceremony Commemorative of the National day of Portugal, Camões and the Portuguese Communities, held in Faro, 10 June.
- FEMINA prize in the category of Scientific Merit.
- JID best paper award 2010 from Korean Information Display Society to the work "Self-sustained n-Type Memory Transistor Devices Based on Natural Cellulose Paper Fibers" by R. Martins, L. Pereira, P. Barquinha, N. Correia, G. Gonçalves, I. Ferreira, C. Dias, N. Correia, M. Dionísio, M. Silva and E.

Fortunato.

- Gold Mercury Sustainability Award, Category: Personality of the Year.

2011

- Nominated for the Körber European Science Award 2011, Koerber Foundation, Germany.
- Member of the AcademiaNet Germany.

## 5. Professional Activities

- 2012-... Member of the Scientific Council of "Fundação Francisco Manuel dos Santos".
- 2012-... Full Professor, Materials Science Department, FCT-UNL.
- 2012-... Member of the National Scientific and Technological Council (CNCT).
- 2006-... Representative of the Research Centers of FCT-UNL at the Scientific Council.
- 2009-... Member of the Executive Board of the Materials Science Department.
- 2009-... Member of the Scientific Council of the TICE.PT, recognized by the Portuguese Government in August 2009, as part of the QREN's Strategies for Collective Efficiency.
- 1998-2012 Associate Professor, Materials Science Department, FCT-UNL.
- 1998-... Director of the Materials Research Center (CENIMAT|I3N) – FCT/UNL.
- 2008-... Member of the Scientific Council for Exact Sciences and Engineering from FCT-MEC.
- 2004-2011 Member of the grant panel in the area of Materials Science and Engineering from FCT-MCTES.
- 2009-... Invited evaluator of the European Research Council.
- 2006-... Invited evaluator of the National Science Foundation, USA.
- 2007-... Invited evaluator of the FP6 and FP7 European Projects.
- 2002-... Invited evaluator from several Research Agencies like the ones from: Luxembourg, Ireland, Italy, Spain, Sweden, Finland, Canada, Swiss, Netherlands, United Kingdom, South Africa.
- 2004-... Invited evaluator for the European Science Foundation
- 2007-2009 Director of the Associate Laboratory I3N.
- 1991-2009 Member of the Advisory Board of the Materials Science Department.
- 1995-1997 Assistant Professor, Department of Materials Science, of FCT-UNL
- 2001-2004 Vice-President of the Advanced Learning Institute (IFORNOVA).
- 1999-2003 Member of the Advisory Board of the Almada Energy Agency.
- 1997-2005 Portuguese Responsible of the European Master on Renewable Energies.
- 1997-1998 Member of the Directive Board of the Faculty of Sciences and Technology from UNL.
- 1996-2007 Responsible of the Semiconductor Materials group from de Materials Science Dep.
- 1996-1998 Member of the Directive Board of the Materials Research Center from UNL.
- 1993-1995 Member of the Management Board of the Materials Science Department.
- 1992-1993 Member of the Directive Board of the Faculty of Sciences and Technology from UNL.
- 1987-1991 Teaching Assistant, Materials Science Department, FCT-UNL.
- 1991-1997 Assistant Professor, Materials Science Department, FCT-UNL.
- 1986-1987 Demonstrator, Materials Science Department, FCT-UNL.

## 6. Teaching activities

### **Materials Science Engineering (1<sup>st</sup> cycle)**

Semiconductor Materials, 1986-1994.

Energy Conversion, 1986-1987.

Solid State Physics, 1986-1994.

Microelectronics, 1995-... (Responsible).

Materials for Energy Conversion I and II, 1995-1997.

Optoelectronics, 1997-2009 (Responsible).

Project, coordination of several students from 1996-2005 including academic and industrial final projects.

### **Materials Science Engineering (2<sup>nd</sup> cycle, master degree)**

Introduction to Materials Science and Engineering, from 2002-2006 (Responsible)

Optoelectronics, 1997-2009 (Responsible)

Microelectronics, 1986-1995 (Responsible)

### **Microelectronic and Nanotechnologies Engineering (2<sup>nd</sup> cycle, master degree)**

Introduction to Microelectronics and Nanotechnologies, from 2009-... (Responsible)

### **Physics Engineering (2<sup>nd</sup> cycle, master degree)**

Topics from Materials Science, 2005-... (Responsible)

### **Materials Engineering (2<sup>nd</sup> cycle, national master degree involving 5 universities)**

Electronic Materials, 1993-2004 (Responsible)

**Electronic Materials Technologies, 1994-2004 (Responsible)**

**Management and Quality of Materials (2<sup>nd</sup> cycle, national master degree with Portuguese Industrial Association)**

Seminars related to Optoelectronics, 1997-2002.

#### **7. Research Supervision**

In the last 13 years I supervised/co-supervised:

**15 Postdoctoral researchers**

**21 Ph.D students**

**18 MSc students**

#### **8. Representative indexes – Scientific Productivity and Impact – period 1996-2010**

Publications found – listed WoK ISI – **413**, Researcher ID: **E-2590-2011**

Sum of Times Cited – **5,052**

H-index – **34**

**Keywords:** Materials Science; Transparent electronics; Thin film transistors; Metal oxide semiconductors; Thin films; Microelectronics; Nanotechnologies; Gas sensors; Biosensors

#### **9. Patents**

Submitted patents: 57

Granted patents: 7

Pending patents: 50

Registered Mark Paper-e®, granted in 14 countries.

#### **10. Organization of Internacional Conferences**

- R. Martins, E. Fortunato, I. Ferreira, V. Chu, J. Conde, ICANS21, 21st International Conference on Amorphous and Nanocrystalline Semiconductors, 4-9 September, Lisbon, Portugal 2005.
- E. Fortunato, J. Wager, C. Granqvist, H. Hosono, E-MRS Spring Meeting, Symposium R: Transparent Electronics: from materials to devices I, May 28 – June 2, 2006, Nice, France.
- E. Fortunato, J. Wager, G. Kiriakidis, H. Hosono, L. Park, E-MRS Spring Meeting, Symposium R: Transparent Electronics: from materials to devices II, May 28 – June 2, 2007, Strasbourg, France.
- E. Fortunato, V. Bulovic, I. Kymissis, 2009 MRS Fall Meeting, Transparent Electronics, 2009, Boston, USA.
- E. Fortunato, J. Wager, H. Hosono, E-MRS Spring Meeting, Symposium R: Transparent Electronics: from materials to devices III, 2009, Strasbourg, France.
- J. J. Berry, E. Fortunato, Y. Shigesato, J. Medvedeva, 2010 MRS Fall Meeting, Transparent Conducting Oxides, 2010, Boston, USA.
- G. Kiriakidis, A. Nathan, E. Fortunato, D. A. Keszler, K. Nomura, E-MRS 2011 Fall Meeting, September 19 - 23, 2011, Warsaw University of Technology, Poland.
- E. Fortunato, R. Martins, 8th International Thin-Film Transistor Conference, 30-31 January 2012, Lisbon – Portugal.

#### **11. Editorial Board Memberships**

Associate editor of *Physica Status Solidi Rapid Research Letters*, Wiley since 2007.

Guest Editor of *Journal of Non-Crystalline Solids* (2006-Elsevier).

Guest Editor of *Thin Solid Films* (2007, 2008-Elsevier).

Guest Editor of *Physica Status Solidi a* (2008-Wiley).

Co-Editor of *Europhysics Letters (EPL)* since 2011.

Advisory Editorial Board of *Applied Surface Science* since 2012.