



# Nora Gourdoupi, PhD

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## General Manager, Advent Technologies SA

Address | +306945852824 | E-Mail Address [ngourdoupi@advent.energy](mailto:ngourdoupi@advent.energy)

### Professional Summary

Nora Gourdoupi holds a BSc in Chemistry and a PhD from the University of Patras specializing in the synthesis and characterization of polymers for fuel cell applications. She joined Advent Technologies in 2006 as a Senior Scientist and is co inventor in 18 patents. Being part of a fast-growing Small Medium Enterprise from its foundation, Nora has been involved in several key business processes including materials R&D as well as project management. She currently holds the position of General Manager of the Greek branch overseeing daily operations while being also engaged in product development, government projects and technical sales. She enjoys using her science knowledge to understand the business and technical issues customers are facing and offer appropriate solutions.

### Work Experience and Qualifications

#### **ADVENT TECHNOLOGIES, SENIOR SCIENTIST, JANUARY 2006-NOVEMBER 2009**

- Set up Advent Technologies' lab facilities
- Synthesis and characterization of new polymer electrolytes
- Production & testing of core components of PEM fuel cells
- Supply Chain Manager
- Head of the company patent portfolio in collaboration with patent law firm in US
- Presentations for conferences and projects' meetings
- Communication with customers/partners for technical issues

#### **ADVENT TECHNOLOGIES, R&D MANAGER & TECHNICAL SALES/MARKETING, DECEMBER 2009-JANUARY 2020**

- Manager of a technical team of 4, oversee research and development, design and recommend technical targets
- Technical manager of European projects and two European Space Agency contracts, coordinator for the application of new European projects
- R&D lab work for national and international projects, report & deliverables preparation, presentations at meetings with partners and review meetings, frequent communication with partners about technical issues, samples, next steps
- Close collaboration with engineering team for PEM fuel cell stacks manufacturing and testing
- Product development: in charge of design and testing of new membrane electrode assemblies for PEM fuel cells towards the development of new products to fulfill the market needs
- Cost calculation of production of polymers, membranes, membrane electrode assemblies and HTPEM FC stacks
- Communication with customers, issuance of quotations, orders, invoices
- Representative of the company in international fairs and conferences
- Experience on the administrative and business development due to close collaboration with the CEO

- Experience in cash flows preparation with 3-years projection (projects related and overhead)
- Report to the CTO & CEO

### **ADVENT TECHNOLOGIES, GENERAL MANAGER, FEBRUARY 2020-TODAY**

- Overseeing daily business operations of Patras facilities
- Generating reports and giving presentations
- Report key results to corporate officers
- Engage in customer activities
- Engage with corporate officers in broader organizational strategic planning
- Engage with European projects technical goals and budgeting
- Training staff
- Creating and managing budgets
- Hiring employees

### **Education**

- Ph.D. in Polymer Synthesis for HT PEM fuel cells (University of Patras, 2006)
- B.Sc. in Chemistry (University of Patras, 2001, Upper second class: 8.2/10)

### **Relevant Publications**

#### **SCIENTIFIC CONFERENCES, SPEAKER**

- 11th European Space Power Conference , Porto Palace, Thessaloniki, 3-7 October, 2016, "High Temperature PEM fuel cell stacks with Advent TPS MEAs"
- 3rd International Workshop on degradation issues of Fuel cells & Electrolysers, Santorini, Greece, 29 September- 1 October 2015, " Degradation issues related to High Temperature Membrane Electrode Assemblies "
- 2d Carisma International conference on Progress in MEA Materials for Medium and High Temperature Polymer Electrolyte Fuel Cells, La Grande Motte, France, 19-22 Sept. 2010, "Advent TPS® high temperature PEM MEAs"
- 18th World Hydrogen Energy Conference, Essen, Germany, 16-21 May 2010, "High temperature PEM FCs based on Advent TPS technology"
- 2d National Symposium of Green Chemistry and Sustainable development, Patras, 8-10 March 2007. "Aromatic polyether copolymers and their fuel cell performance"
- 3d National Hydrogen Conference, Patras, 19-20 November 2007. "High temperature PEM fuel cells with MEAs comprised of Advent TPS aromatic polyether type materials"
- FEMS, EUROMAT, Nurnberg, 10-13 September 2007. "New High Temperature Polymer Electrolyte Membranes and their Fuel Cell Performance"
- 20th National Conference of Chemistry, Chemistry: Education, research and applications, Ioannina, 20-24/9 2005, " Development of new high temperature electrolyte and their application in fuel cells"
- 2d National Conference of Plastics, Athens, 20-21/3 2005, "High temperature PEM fuel cells: electrolytes with new chemical structure, membrane electrode assemblies and their fuel cell application"
- 1st National Conference of Plastics, Athens, 15-17/3 2003, "Development of polymeric materials for their application in high temperature polymer electrolyte fuel cells"

## **CONFERENCES/EXHIBITIONS, EXHIBITOR & SPEAKER WHERE NOTED**

- 9th Panorama of Entrepreneurship & Careers, Megaron Athens Concert Hall, Session: High-Tech made in Greece, 31 March, 2019, Forum speaker: "Advent: Building the Future of Clean Energy"
- 3rd Hellenic Innovation Forum, Divani Caravel, Athens, Greece 20 June 2019, Presentation: "Advent: Building the Future of Clean Energy"
- 1st Hellenic – Israeli Industry Day, 31 October 2016, Presentation: "World leader in the development of advanced materials and devices for energy, defense and aerospace applications"
- Hannover Messe 2016, Hydrogen Fuel Cells & Batteries, 25-29 April, 2016
- Hannover Messe 2015, Hydrogen Fuel Cells & Batteries, 13-17 April, 2015
- Hannover Messe 2014, Hydrogen Fuel Cells & Batteries, 7-11 April, 2014
- Hannover Messe 2013, Germany, April 8-12, 2013 Technical Forum presentation: "Recent Developments on Advent Technologies HT MEAs" & Public Forum Interview: "Advent Technologies High Temperature MEAs"
- Hannover Messe, Hydrogen and Fuel Cells, 19-23 April 2010
- Hannover Messe, Hydrogen and Fuel Cells, 20-24 April 2009
- Fuel Cell Seminar, Palm Springs, California, 16-19 November 2009 Poster presentation: "High Temperature Membrane Electrode Assemblies and their Fuel Cell Performance"
- Fuel Cell Seminar, Phoenix, Arizona, 27-30 October 2008
- Hannover Messe, Hydrogen and Fuel Cells, 21-25 April 2008
- Fuel Cell Seminar, San Antonio, Texas, 15-17 November 2007. Technical presentation: "Aromatic polyether copolymers and their fuel cell performance"
- Hannover Messe, Hydrogen and Fuel Cells, 16-20 April 2007.

## **SCIENTIFIC CONFERENCES, CO AUTHOR IN PRESENTATIONS**

- 6th CARISMA Conference, Duisburg Essen, 27-30 August, 2019 "Developments for Commercial High Temperature Membrane Electrode Assemblies", Emory S. De Castro, Nora Gourdoupi, Ryan K. Pavlicek, Brian C. Benicewicz
- American Chemical Society's ECS (Electrochemical Society) Meeting, Las Vegas, US, October 10-15, 2010, Las Vegas "Influence of the Molecular Structure on the Properties and Fuel Cell Performance of High Temperature Polymer Electrolyte Membranes"
- 7th National Conference of Chemical Engineering, 3-5 June 2009, "New Polymer electrolytes and their use in High Temperature PEM fuel cells"
- Workshop "Advances in Polymer Electrolyte Membrane Fuel Cell Systems", Pacific Grove, California, USA February 15 – 18, 2009, "High Temperature Membrane Electrode Assemblies and their Fuel Cell Performance"
- 1st CARISMA international conference, La Grande Motte, France, 21-24 Sept. 2008, "Influence of the molecular structure of new high temperature polymer electrolytes on their properties"
- Electric mass of transport in Greece-Existing situation and perspectives, EVEA Athens, 12/01-3/01/2006. "Polymer electrolytes and their application in polymer electrolyte fuel cells"
- International Hydrogen Energy Congress and Exhibition, Istanbul, 13-15/7 2005. "New High Temperature Polymer Electrolyte Membranes and their Fuel Cell Performance".
- Symposium on High Temperature PEM Fuel Cells, Patras, 13-14/9 2005. "PBI-free High Temperature Polymer Electrolyte Membranes and their Application in Fuel Cells"

- 2st National Conference of hydrogen technology, Themi Thessaloniki, 20-21/10 2005. "New polymer electrolytes and their performance in high temperature PEM fuel cells"
- 2005 MRS Fall Meeting. Boston, MA USA, 28/11-2/10/2005. "The Effect of the Fuel Cell Polarization and Steam Content on the Conductivity and Stability of Novel High Temperature Polymer Electrolytes".
- 1st National Symposium: « Green Chemistry and Viable Development", Exhibition center Expoathens, Athens, 27-28/2 2004. "Development of new polymeric materials for fuel cell applications. An environmentally friendly technology"
- 1st National conference of hydrogen technology, Athens, 30/9 - 2/10/2004. "Polymer electrolyte membranes (PEM), based on aromatic polymers and their blends"
- 55th Annual Meeting of the International Society of Electrochemistry, Thessaloniki, 19-24/9 2004, "PBI/PPy(50)coPSF Polymer Electrolytes for High Temperature PEM Fuel Cells".
- 7th International Conference on Fundamental and Applied Aspects of Physical Chemistry, Belgrade, Serbia & Montenegro, 21-23/9 2004. "Proton Conducting Membranes Based on PBI/Polysulfone Copolymer Blends".
- 5th International Symposium on New Materials for Electrochemical Systems, Montreal, 6-11/7 2003. "Proton conducting polymeric membranes based on polymer blends for use in high temperature PEM fuel cells".

## ACADEMIC JOURNALS

- "Regenerative System as energy storage solution based on a High Pressure PEM Electrolyzer and a High Temperature PEM Fuel Cell" ESPC2019 conference proceedings, Kalliopi-Maria Papazisi, Dimitrios Tsiplakides, Stella Balomenou, Dimitrios Niakolas, Stylianos Neophytides, Thomas Kanellopoulos, Emory De Castro, Nora Gourdoupi & Brandon Buerger
- " High Temperature PEM Fuel Cell Stacks with Advent TPS Meas" E3S Web Conf. Volume 16, 2017, 11th European Space Power Conference, Stylianos Neophytides, Maria K. Daletou, Nikolaos Athanasopoulos, Nora Gourdoupi, Emory De Castro and Max Schautz,
- "Performance evaluation of a proof-of-concept 70 W internal reforming methanol fuel cell system" , Journal of Power Sources, 2016, 307 (1), 875-882 G.Avgouropoulos, S. Schlicker, K-P Schelhass, J. Papavasiliou, ,K.D.Papadimitriou,E.Theodorakopoulou,N.Gourdoupi,A.Machocki,T.Ioannides,J.K.Kallitsis,G. Kolb,S.Neophytides
- "High performance polymer electrolytes based on main and side chain pyridine aromatic polyethers for high and medium temperature proton exchange membrane fuel cells" Journal of Power Sources, 2011, 196 (22), 9382-9390
- "New proton conducting polymer blends and their fuel cell performance", N. Gourdoupi, J.K. Kallitsis, S. Neophytides, Journal of Power Sources, 2010, 195 (1), 170-174 M. Geormezi, C. L. Chochos, N. Gourdoupi, S. G. Neophytides, J. K. Kallitsis
- Novel composites materials from functionalized polymers and silver coated titanium oxide capable for calcium phosphate induction, control of orthopedic biofilm infections: an "in vitro" study, Journal of Materials Science: Materials in Medicine, 2010, 21, 2201–2211, M. Tyllianakis, E. Dalas, M. Christofidou, J. K. Kallitsis, A. Chrissanthopoulos, P. G. Koutsoukos, C. Bartzavali, N. Gourdoupi, K. Papadimitriou, E. K. Oikonomou, S. N. Yannopoulos & D. Sevastos
- "New High Temperature Polymer Electrolyte Membranes. Influence of the Chemical Structure on their Properties" Gourdoupi N, Papadimitriou K, Neophytides S, Kallitsis J.K, Fuel Cells, 2008, 8(3-4): 200-208

- “Novel Pyridine-Based Poly(ether sulfones) and their Study in High Temperature PEM Fuel Cells” M. Geormezi, V. Deimede, N. Gourdoupi, N.Triantafyllopoulos, S. Neophytides, and J.K. Kallitsis, *Macromolecules*, 2008, 41 (23): 9051-9056
- “New Polymer Electrolyte Membrane based on Sulfonated Polysulfone Blends” M. Geormezi, N. Gourdoupi, M.K. Daletou, J.K. Kallitsis, *CI&CEQ*, 2005, 11, 137
- “Novel Polymer Electrolyte Membrane, containing pyridine and tetramethyl biphenyl units, for Application in High Temperature PEM Fuel Cells” E.K. Pefkianakis, V. Deimede, M.K. Daletou, N. Gourdoupi, J.K. Kallitsis, *Macromol. Rapid Commun.*, 2005, 26, 1724
- “Proton Conducting Membranes based on Blends of PBI with Aromatic Polyethers containing Pyridine Units” M.K. Daletou, N. Gourdoupi, J.K. Kallitsis, *J. Membr. Sci.*, 2005, 252, 115
- “Proton Conducting Membranes based on Polymer Blends for use in High Temperature PEM Fuel Cells” J.K. Kallitsis, N. Gourdoupi, *J. New Mater. Electrochem Syst*, 2003, 6, 217
- “Novel Proton Conducting Polyelectrolyte Composed of an Aromatic Polyether Containing Main-Chain Pyridine Units for Fuel Cells Applications” N.Gourdoupi, A.K. Andreopoulou, V. Deimede, J.K. Kallitsis, *Chem.Mater.*, 2003, 15, 5044

## PATENTS

- Thermally stable conductive polymers for electrochemical gas sensor applications US 2019 276 602A1
- Ion exchange membranes based on proton conducting aromatic polyether type copolymers bearing main and side chain pyridine groups and its application in redox flow battery
- Aromatic polyether copolymers and polymer blends and fuel cells comprising same, EP 2,067,199, US 7,842,733, CA 2,662,608, KR 101524099, CN 101536224, AU 2007301545 JP2010502809
- Development and characterization of novel proton conducting aromatic polyether type copolymers bearing main and side chain pyridine groups CA 2,662,614 JP 5324445 EP 2,089,377 US 7,842,775
- Proton conducting aromatic polyether type copolymers bearing main and side chain pyridine groups for use in proton exchange membrane fuel cells US 7, 754, 843 EP 2,134,768
- Development and characterization of novel proton conducting aromatic polyether type copolymers bearing main and side chain pyridine groups US 7,786,244
- Acid-doped polyelectrolyte modified carbon nanotubes and their use in high temperature PEM fuel cell electrodes US 8,247,521
- Novel poly(arylene ether) copolymers containing pyridine units as proton exchange membranes US 7,842,734
- Energy production system consisting of a fuel cell and a fuel treatment unit for the operation of a refrigerator in areas without electricity supply GR 1007390
- High temperature polymer electrolyte membranes (PEM) and membrane electrode assemblies (MEA) based on blends of aromatic polyethers GR 1006337
- Crosslinked or non crosslinked aromatic (co)polymers as proton conductors for use in High Temperature PEM fuel cells GR20110100058