Curriculum vitae del candidato *Marco Apostolo*

Per il settore ERC primario: *codice_PE5_14*

Per l'eventuale settore ERC secondario: *PE11_4*

PERSONAL DETAILS

Family name, First name: Marco Apostolo

Researcher unique identifier(s) (such as ORCID, Research ID, etc. ...):

URL for web site:

- **Education and key qualifications**

1995	PhD - Scuola Normale Superiore di Pisa Name of PhD Supervisor – Arvind Varma, Massimo Morbidelli
1991	Laurea in Ingegneria chimica Politecnico di Milano Name of Thesis Supervisor – Sergio Carrà

- **Current position(s)**

2022 - current Director of the R&D Syesnqo center in Bollate (300 researchers, 500 employees overall)
2024 - current - President of the Industrial leg of ITATEC
2024 - current Member of the Presidency Council of Federchimica
2023 - current Member of the Adivisory board of the PhD School of Politecnico di Milano

- **Previous position(s)**

2023 - 2025 - Country Manager of Syensqo Italy (1220 employees, 1200M€ of turnover)
2019 - 2024 - Technical Director of the Thermoplastic Composites Platform worldwide activities (Alpharetta site, GA USA)
2018 –2019 - Head of Core Labs and Business Incubators R&D (Bollate site, Italy, 150 FTE)
2014-2018 - R&D Technology Manager at Solvay Specialty Polymers (Alpharetta site, GA, USA, 100 FTE)
2010- 2014 - R&D manager of Alternative Energy R&D (Bollate). I built the AE Park (today Lithium Battery lab) from scratch. Other areas we investigated was: Fuel Cell, photovoltaics, flow batteries, DSSC
2007-2010 - Tecnoflon R&D manager (Solvay Solexis – Bollate). Polymerization process, curing chemistry, polymer processing of fluoro-elastomers and perfluoro-elastomers.
2005-2007 - Corporate Process Engineering Manager for all USA plants of Solvay Solexis (West Deptford, Orange, Newark, US)
1995-2003 - Researcher at the Bollate R&D center (Ausimont S.p.A. until 2002 then Solvay Solexis). Development of fluoroelastomers, perfluoropolymers to be used as optical fibers, perfluorinated ionomers (fuel cells, lithium batteries, chlor/alkali cells, ….), mathematical modeling of polymerization process, control and on-line sensors of polymerization reactions, statistical process control of industrial plants

RESEARCH ACHIEVEMENTS AND PEER RECOGNITION

Research achievements

A list of my 75 scientific publications is available upon request.
During my career I filed 57 international patents.
Examples of innovative solutions that I developed and patented and are now relevant businesses are:

- Special fluoroelastomers with exceptional thermal and chemical resistance. They are used as sealing elements like gaskets and ORings in automotive motors. Their exceptional properties allowed the development of increasingly highly efficient motors, up to the current Euro 6 cars, that emits about ten-times less carcinogenic off-gas compared to the past motors.
- Innovative Polyvinylidene fluoride polymers that exhibit very high electrochemical resistance. They are used as binders in lithium battery cathodes as well as separators. About 12 years ago I created from scratch the lithium batteries labs in Bollate R&D center and started the development of such polymer chemistry and its implementation in a lithium battery. Today Syesnqo is world leader in that market. To serve the market we built 2 production plants (France and China) and two more are in construction.
- Perfluoroelastomers used in semicon industry. They are the only known elastomers able to survive the plasma chamber conditions adopted in the manufacturing of silicon wafers. I developed a novel polymerization technology and an extremely innovative post-treatment process through which we have been able to achieve the high purity conditions requested for the semicon industry. Today we are world leader in this application.
- Green Hydrogen Platform. When I was in charge of the "Incubators", I contributed to the development of a unique chemistry for the protonic membranes of fuel cells and electrolysers. Now we are scaling-up the technology to the industrial scale to serve the booing market of green hydrogen for sustainable mobility.
- Thermoplastic composites for aerospace. As Technology Director I guided the creation of R&D labs and the consolidation of industrial infrastructure. We expect this to become a multibillion business in the next 10-20 years.

The full list of patents is the following:

[57] J.Sirrine, M.Michon, G.Desio, L.Williams, M.Apostolo, X.Thiry, K.Branham, "Thermoplastic Composite Materials, SSPU 2022/021 (2022)
[56] N,Chen, L.Williams, M.Apostolo, G.Gunther, D.Khariwala, "Composite films for mobile electronic device components", SSPU 2021/021 (2021)
[55] N,Chen, L.Williams, M.Apostolo, G.Gunther, D.Khariwala, "Composite films for mobile electronic device components", SSPU 2021/015 (2021)
[54] N,Chen, L.Williams, M.Apostolo, G.Gunther, "Composite films for mobile electronic device components", SSPU 2021/014 (2021)
[53] K.Braham, D.Roller, S.Jeol, M.Apostolo, R.Moore, L.Anderson, S.Talley, Y.Xijing, "Blocky Poly(ether ether ketone) copolymers and corresponding synthesis methods and articles", SSPI 2016/041 (2017)
[52] M.Genoni, S.Mauri, M.Bassi, M.Apostolo, M.Avataneo, "Shielded Cables", SSPI 2017/021 (2017)
[51] S.Mauri, M.Apostolo, M.Avataneo, P.Colaianna, "Article and method for its manufacture", SSPI 2017/035 (2017)
[50] J.Pollino, S.Jeol, M.Apostolo, "UV-stabilizer solution for treating the surface layer of a polymer article", SSPU 2017/002 (2017).
[49] M.Apostolo, S.Mauri, A.Oriani, "Electric circuit including a flexible conductor", SSPI 2016/033 (2016)
[48] M.Fantoni, M.Apostolo, S.Mauri, "Fuel Hose", SSPI 2016/028 (2016)
[47] M.Apostolo, S.Mauri, G.Harkness, A.Oriani, "Multilayer compositions", SSPI 2016/005 (2016)
[46] P.Cojocaru, A.Oriani, S.Mauri, M.Apostolo, "Multilayer composition", SSPI 2015/031 (2015)
[45] P.Cojocaru, M.Apostolo, F.Triulzi, "Multi-layered elastomer article", WO16079230 (2014)
[44] P.Cojocaru, N.Messina, M.Colladon, V.Arcella, M.Apostolo, F.Triulzi, "Pipes for upstream applications having lower permeation to gases", SSPI 2014/022 (2014)
[43] P.Cojocaru, F.Triulzi, M.Apostolo, "Process for the metallization of cathode active particles for Li-ion batteries", SSPI 2014/037 (2014)
[42] "Compositions for electrodeposition of metals", 2014/018 (2014)

[41] “Collector for a luminescent solar concentrator”, 2014/013 (2014)
[40] M.Apostolo, F.Triulzi, P.Cojocaru, I.Wlassics, G.Marchionni, C.Tonelli “Crosslinkable Fluoropolymers”, WO15128339 (2014)
[39] P.Cojocaru, M.Apostolo, F.Triulzi, M.Spreafico, A.Oriani, “Display devices”, EP13199419 (2013)
[38] P.Cojocaru, F.Triulzi, M.Apostolo, “Blister packages”, EP13199367 (2013)
[37] P.Cojocaru, S.Mortara, M.Apostolo, F.Triulzi, “Thermal acoustic insulation blankets”, EP13199363 (2013)
[36] L.Damen, M.Apostolo, R.Pieri, M.Galimberti, V.Tortelli, “HFE as solvents in electrolytic solutions for Li batteries”, EP13194847.1 (2013)
[35] P.Cojocaru, M.Apostolo, A.Marrani, I.Falco, “Manufacture of transparent electrodes by printing techniques”, WO15032915 (2013)
[34] P.Cojocaru, M.Apostolo, “Metallization of anode materials for Li-ion batteries”, SOL2013/012 (2013)
[33] P.Cojocaru, S.Mortara, M.Apostolo, F.Triulzi, “Multilayer mirror assembly”, EP 13161828.2 (2013)
[32] F.Fouda-Onana, R.Pieri, M.Apostolo, B.Chen, H. Miltner “Electrode-forming composition”, WO13092446 (2011)
[31] P.Coyocaru, R.Pieri, M.Apostolo, “Electrode-forming composition” WO2013037692 (2011)
[30] M.Apostolo, M.Fantoni, G.Comino, “Hyperbranched fluoroelastomer additive” WO 2012/168351 (2012)
[29] B.Kent, M.Apostolo, L.Chernysheva, G.Comino, F.Spada, “Method for manufacturing fluoroelastomers”, WO 2012/150253 (2011)
[28] M.Apostolo, M. Cristini, G. Comino, “Low viscosity fluoroelastomers”, SOL 2010/28 (2010)
[27] M.Apostolo, L.Chernysheva, “Fluoroelastomer”, SOL 2010/19 (2010)
[26] M.Fantoni, M.Apostolo, G.Comino, “Fluoroelastomer composition”, SOL 2010/14 (2010)
[25] M.Avataneo, G.Marchionni, M.Fantoni, M.Apostolo, “Fluoroelastomer composition”, SOL 2010/13 (2010)
[24] M.Apostolo, R.Pieri, L.Chernysheva, “Method for manufacturing fluoroelastomers”, EP09180009 (2009), WO11073344
[23] M.Apostolo, P.Schild, L.Morgan, “Fluoroelastomer composition”, SSI 2006/01 (2006)
[22] M.Apostolo, V.Kapeliouchko, A.Galia, O.Scialdone, G.Filardo, “Polymerization process”, EP1741729 (2005).
[21] M.Apostolo, F.Triulzi, V.Tortelli, M.Galimberti, “Fluoroelastomers”, EP1621557, US Appl. 2006/0025528 (2004)
[20] F.Triulzi, M.Apostolo, V.Tortelli, M.Galimberti, “Perfluoropolymers”, EP1621559, US Appl. 2006/0025635 (2004)
[19] M.Apostolo, F.Triulzi, V.Tortelli, M.Galimberti, “TFE-based thermoprocessable copolymers”, EP 1621558, US Appl. 2006/0025529 (2004)
[18] G.Comino, M.Albano, M.Apostolo, “Perfluoroelastomers”, EP1632526, US Appl. 20050282969 (2005)
[17] M.Apostolo, S.Arrigoni, M.Albano, “Fluoroelastomer gels”, EP1609806 (2005), US Appl. 20050282955 (2005)
[16] S.Arrigoni, M.Apostolo, M.Albano, “Perfluoroelastomer gels”, EP1626068, US Appl. 2005/0282954 (2005)
[15] F.Triulzi, M.Apostolo, V.Arcella, “Polimeri fluorurati”, US Appl. 20040225094, EP 1,469,016 (2004)
[14] V.Arcella, M.Apostolo, F.Triulzi, “Polimeri amorfi”, US 7091295, EP 1,469,015 (2004)
[13] M.Apostolo, F.Triulzi, V.Arcella, V.Tortelli, P.Calini, Amorphous perfluorinated copolymers, EP 1,256,592 A1 (2002), US 6,809,166 (2004), US 6,936,668 (2005)

[12] M.Apostolo, S.Arrigoni, “Perfluoroelastomers”, US 6,642,331 (2001), EP 1,308,467 (2001), EP 1,589,048 (2005)
[11] M.Apostolo, M.Albano, S.Arrigoni, “Fluoroelastomer Compositions”, US 6,844,036 (2005), EP 1,262,550 (2002)
[10] M.Apostolo, M.Albano, S.Arrigoni, “Fluoroelastomer Compositions”, US 6,710,132 (2002), EP 1,262,518 (2002)
[9] M.Albano, M.Apostolo, S.Arrigoni, “Fluoroelastomer Compositions”, US 6,822,050 (2004), EP 1,262,517 (2002)
[8] M.Albano, M.Apostolo, S.Arrigoni, “Fluoroelastomer Compositions”, US 6,750,295 (2002), EP 1,262,497 (2002)
[7] V.Arcella, A.Ghielmi, M.Apostolo, J.Abusleme, “Fluorinated Ionomers” EP 1,167,400 (2001) , US 6,576,100 (2001)
[6] M.Apostolo, V.Arcella, “Polymerization process of Sulphonic Monomers” EP 1,172,382 (20011), US 6,555,639 (2001)
[5] M.Albano, M.Apostolo, V.Arcella, E.Marchese, “Fluoroelastomer Compositions”, US 6,395,834 (2002), EP 1,031,607 (2000)
[4] M.Apostolo, M.Albano, A.Staccione, “Fluoroelastomer Compositions”, US 6,310,142 (2001) and EP 1,031,606 (2000)
[3] I.Wlassics, M.Apostolo, M.Albano, “Fluoroelastomers”, EP 0,979,832 (1999), US 6,500,903 (1999), US 6,759,494 (2002)
[2] M.Apostolo, M.Albano, “Curable Fluoroelastomers by Peroxidic Way”, US 6,323,283 (2001) and EP 0,967,248 (1999)
[1] G.Brinati, V.Arcella, M.Apostolo, A.Staccione, “O-Rings from Ionically Curable Fluoroelastomers”, US 6,111,028 (1997) and EP 0,838,482 (1998)

Peer recognition

2023 –Advisory Board member of PhD school of *Politecnico di Milano*
2016 - Solvay Inspiring Innovation – Audience Award – P2M technology
2006 - Solvay Innovation Trophy – New Business category - PFR5910M

ADDITIONAL INFORMATION

3 international experiences in the US (10 y overall),
Transformation leader, passionate about innovation, championing creative solutions
Entrepreneurial mind-set, inclined to lead with purpose with long-term, big picture thinking