



## Pietro Marescotti

Associate professor

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### *Education and training*

1997

#### **PhD in Earth Sciences**

Study of the manganese mineralizations associated with the Diaspri of M. Alpe mineralogy chemistry phase equilibria and genetic significance  
Genova Torino and Cagliari University consortium - Genova - IT

### *Academic experience*

1997 - 1999

#### **Post-doctoral fellow**

University of Genova - Genova - IT

1999 - 2015

#### **Researcher (permanent position) Scientific Sector GEO/06 Mineralogy**

Università di Genova - Genova - IT

2015 - ONGOING

#### **Associate Professor (permanent position) Scientific Sector GEO/09 Mining georesources and mineralogical petrographical applications for the environment and cultural heritage**

Università di Genova - Genova - IT

Responsible of the Quality Assurance for DISTAV and member of the Quality Assurance Commission of the M.F.N. School of Sciences University of Genova.

### *Language skills*

#### **English**

Independent

### *Teaching activity*

Since 1999 I carried out my teaching activity as part of the Degree Programs in Geological Sciences, Sciences and Technologies for the Environment and Nature, and Methodologies for the Conservation and Restoration of Cultural Heritage at the University of Genova.

- 1999-2017 teacher of the courses: a) Minerogenesis; b) Conservation and Valorisation of Geological Heritage; c) Minerals, Rocks and Fossils from Liguria region; d) The Materials of the Earth's Crust; e) Minerals and their genetic processes; f) Minerogenesis in Petrogenetic Processes; g) Applied Mineralogy; h) Useful Minerals and their Use; i) Minerogenesis and Geodynamic Environments; l) Environmental Mineralogy, m) Methods of Investigation for Geomaterials.
- 2015 - Teacher of the course 'Introduction to mineralogy and geology' (2 CFU) for the Class A059 (Mathematics, Chemistry, Physics and Natural Sciences for Secondary School).
- 2015 - Teacher of the course 'Elements of Geology' (3CFU) for the Class A060 (Natural Sciences, Chemistry and Geography, Microbiology for High Schools and Technical and Professional Institutes
- 2018-2019 - 1) Environmental Mineralogy; 2) Methods of Investigation for Geomaterials; 3) Applied Mineralogy for Cultural Heritage

Since 1999 I have been supervisor of 50 Bachelor's and Master's degree Thesis in Geological Sciences, Natural Sciences and Environmental Sciences. I am a member of the Council of the Doctorate School in Sciences and Technologies for the Environment and Territory (STAT) of the University of Genova and I supervised 5 PhD thesis.

Since 2002 I held lectures and invited seminars at national and international PhD Schools and Masters at Italian and foreign Universities and Research Centers.

- 2002 - Teacher for the University Master: 'Asbestos and other pathogenic fibers: hazard evaluation in anthropogenic environments'. PERFORM - University of Genova
- 2003 - Teacher for the University Master: "Management of Natural Heritage for the fulfillment of Naturalistic-Environmental Legislation". PERFORM - University of Genova.
- 2003 - Invited Speaker at the PhD School in Earth Sciences (University of Perugia). Seminar 1: "Interaction between biosphere and lithosphere: role of microorganisms in minerogenetic processes". Seminar 2: "Role of microorganisms in alteration processes of volcanic glass. Mechanisms, textural evidences, methods of study.
- 2004 - Invited Speaker at the GNM's Summer School 'Properties and applications of minerals at the nanoscale'. Talk title: "Nanominerals and the environment: genesis, evolution and interactions in the ARD (Acid Rock Drainage) systems"
- 2008 - Field Trip Leader 'Conservation and reuse of mining heritage: the Val Graveglia manganese mines and the Val Fontanabuona slate quarries', 1° SIMP-AIC International Joint Meeting, September 7-12, 2008.
- 2009 - Invited Speaker at the PhD School of the Societatea Geologică a României, Filiala Cluj, Departamentul de Geologie și GEKKO, Universitatea Babeș-Bolyai, Cluj Napoca (Romania): Environmental impact of the AMD (Acid Mine Drainage) processes: examples from

- the abandoned Fe-Cu mine of Libiola (northern Italy)”
- 2011 - Invited Speaker at the GNM's and GABEC's International Summer School 'Minerals and Biosphere', Campiglia Marittima: Mineral-biosphere interactions in contaminated soils'.
  - 2011 - Teacher of the school (32h) for Public Employees (Municipality of Genova) 'Excavation of rocks and soils: technical-, environmental-, and legal-aspects.
  - 2012 - Invited Speaker at the PhD School in Earth sciences and geotechnologies (University of Perugia): “Mineral-biosphere interactions in contaminated mining soils”
  - 2016 - Invited Speaker at the PhD School in Earth sciences and geotechnologies (University of Perugia): Ecotoxic metals in soils - Determination of their origin and background levels using a mineralogical and geochemical approach.
  - 2020 - Invited Speaker at the PhD School in Earth sciences and geotechnologies (University of Perugia): Abandone

## *Postgraduate research and teaching activity*

### **Supervision of PhD students, residents and post-doctoral fellows**

Supervisor of the following 5 PhD thesis:

- **Dott.ssa Cristina Carbone**, PhD in Earth Sciences, University of Genova, XX cycle. *Crystal chemistry and minerogenesis of Fe-oxydes and -oxyhydroxides related to Acid Mine Drainage processes from the Libiola mine (Sestri Levante, GE);*
- **Dott.ssa Eva Azzali**, PhD School in Sciences and Technologies for the Environment and Territory (STAT) of the University of Genova, XXIV cycle. *Mineralogical evolution and chemistry of ochreous precipitates related to Acid Mine Drainage processes from the Roşia Montană gold mine (Romania) and the Libiola Fe-Cu sulphide mine (Italy);*
- **Dott.ssa Monica Solimano**, PhD School in Sciences and Technologies for the Environment and Territory (STAT) of the University of Genova, XVII cycle. *Mineralogical and chemical investigations for the characterization of the environmental matrices in sediments and rocks of ophiolitic sequences.*
- **Dott.ssa Grazia Cecchi**, PhD School in Sciences and Technologies for the Environment and Territory (STAT) of the University of Genova, XXIX cycle; *Geomycology: the study of interactions among minerals, metals and fungi in abandoned sulfide mines.*
- **Dott.ssa Silvia Fornasaro**, PhD School in Sciences and Technologies for the Environment and Territory (STAT) of the University of Genova, XXXI cycle. *Trace elements in serpentinitic soils and rocks in ophiolites from different orogenic settings (Liguria, Italy)*

## **PhD committees membership**

I am a member of the Academic Board within the Ph.D. in Sciences and Technologies for the Environment and Territory (STAT) of the University of Genova.

## ***Research interests***

My research activity is focused on mineralogy, minerogenesis, applied and environmental mineralogy with particular reference to: a) physico-chemical properties of minerals and mineral genesis in ophiolites and oceanic crust; b) supergenic and hypogenic interactions between minerals and water/fluids; c) environmental impact and geoheritage values of abandoned mining sites; d) Acid Mine Drainage processes; e) asbestos and other fibrous minerals; f) relationships between mineralogical composition and ecotoxic metals in rocks, soils and sediments; g) minerals-biosphere interactions; h) minerals, vegetation and fungi: interactions in natural soils and contaminated sites; mineralogy and cultural heritage.

## ***Editorial activity***

I have produced 207 scientific publications (June 2020): a) 72 research papers; b) 40 abstracts published in scientific journal; c) 19 papers in conference proceedings; d) 60 abstracts in conference proceedings; e) 10 publication as editor of special volumes and magazines f) 6 other publications

- Since 2011 I am Chief Editor of the journal *Plinius* (Italian Supplement of the *European Journal of Mineralogy*, Società Italiana di Mineralogia e Petrologia, Pisa).
- In 2011 I was Guest Editor of the Special Issue 'Mineral-contaminant relationships: towards a multi-scale, multidisciplinary approach'. *Neues Jahrbuch Fur Mineralogie-Abhandlungen*, vol. 188/1, p. 1-98, Stuttgart: Schweizerbart'sche Verlagsbuchhandlung, doi: 10.1127/0077-7757/2011/0188.
- In 2018 I was nominated Guest Editor of the Special Issue 'Chemical-Physical Properties of Minerals and Minerogenesis in Supergene Environment'. *Minerals* (ISSN 2075-163X).
- Since 1999 I am Referee for funding agencies and for national and international ISI journals. I am included in the reviewer's database REPRIS-MIUR and in reviewer's database of the European Commission (Public Health and Risk Assessment) as 'External Expert on risk assessment'.

## ***Assignments abroad***

- 1996 - Shipboard Scientist Ocean Drilling Program – ODP Leg 168 'Hydrothermal circulation in the oceanic crust: Eastern flank of the Juan de Fuca Ridge'. San Francisco (USA)- Victoria (Canada).
- 2005 - Co-proposer and Scientific Member of the experiment CH-2095

performed at the ID-18f beamline at ESRF (European Synchrotron Radiation Facility, Grenoble, France). Experiment title: 'Characterisation by means of  $\mu$ -diffraction and  $\mu$ -fluorescence analyses of Fe-oxyhydroxides heterogeneous aggregates formed by supergenic alteration of natural Fe-Cu-sulfides.'

- 2007 - Main proposer and Scientific Responsible of the experiment EC-156 performed at the ID-21 beamline at ESRF (European Synchrotron Radiation Facility, Grenoble, France). Experiment title: 'Characterization, by means of  $\mu$ -XRF and  $\mu$ -XANES, of Fe-oxides and -oxyhydroxides formed by polymetallic sulphides alteration during AMD processes'.
- 2018 - Main proposer and Scientific Responsible of the experiment 20175192 performed at MCX beamline (Elettra Synchrotron Radiation Facility, Basovizza, Trieste, Italy). Experiment title: 'Potentially Toxic Elements (PTEs) in serpentine soils and bedrocks: mineralogical and crystal chemical investigations'
- 2017 - Invited speaker for a series of traveling conferences for the international project 'Taiwan Start Ups Internationalisation Tour, 8-15 November 2017 - Taiwan'. 1) National Sun Yat-sen University Entrepreneurship Centre, Kaohsiung; 2) National Kaohsiung First University of Science & Technology, Kaohsiung, 3) Innosquare Taiwan Accelerator, Taichung; 4) Chaoyang University of Technology, Taichung; 5) Chung Yuan Christian University, Taipei. From mineralogical, geochemical and geomorphological researches to entrepreneurship; the case of Geospectra srl, Spin-Off of University of Genova.

## *Other professional activities*

- 1996 - Participant of the project 'Realization of the hydrogeological maps (1:25.000) of the Rio S.Pietro, Torrente Varenna and Torrente Polcevera valleys (Provincia di Genova)'. Level of involvement: regional.
- 2002 - Scientific Responsible of the project 'Mineralogical and petrographical studies on the beach nourishment materials used for the Baia delle Favole locality (Sestri Levante, Genova). Performed together with the 'Nucleo Investigativo di Polizia Ambientale e Forestale di Genova'. Level of involvement: regional.
- 2005 - Scientific Responsible of the project 'Geolithological and mineralogical-petrographical characterization of the 'Bargonasco Serpentine Quarry' for the evaluation of the potential asbestos risk. Project performed for the Comune di Casarza Ligure (Genova). Level of involvement: local.
- 2006 - Scientific Responsible of the project 'Mineralogical and petrographical studies on the serpentinites of the Bargonasco Quarry. Qualitative and quantitative analyses of outcropping rocks and quarry sediments to verify the presence of asbestos minerals'. Project performed for the Comune di Casarza Ligure (Genova). Level

of involvement: local.

- 2007 - Scientific Responsible of the project 'Development of the institutional competencies of ARPAL (Regional Agency for Environmental Protection - Liguria) for the mineralogical and petrographical analyses of asbestos-bearing rocks' Project performed for the Regional Agency for Environmental Protection - Liguria. Level of involvement: regional.
- 2007 - Scientific Responsible of the project 'Studies on the abandoned 'Chalcopyrite Libiola Mine' (Sestri Levante, Genova). Census of the structures and infrastructures of environmental concern within the mining area'. Project performed for the Society 'Sviluppo Italia Aree Produttive'. Level of involvement: national.
- 2008 - Scientific partner of the project ' Geological and hydrogeological studies for the construction of a physical barrier for the chromium- contaminated water and sediments of the biggest industrial production of hexavalent chromium in Europe (Stoppani Industry, Cogoleto, Genova)'. Project performed for the Society 'Sviluppo Italia Aree Produttive'. Level of involvement: National.
- 2002-2012 - Several projects for the qualitative and quantitative asbestos determination on natural and artificial materials (rocks, sediments, concrete and other cementitious materials). Level of involvement: local.
- 2011-2013 – Scientific Responsible for the census and evaluation of the potential asbestos risk in the outcrops of the area “Urbe”, “Sassello” e “Tiglieto”. CRG Project (Regional Geological Map - Regione Liguria, Italy) at the scale 1:25000 (Quadrangle 212 Spigno Monferrato).
- Since 2013 - Establishment of an Interdepartmental Spin Off named GeoSpectra s.r.l. (Proponents: Prof. Pietro Marescotti - Department of Earth, Environment and Life Sciences, DISTAV, University of Genova, Prof. Gerardo Brancucci - Department of Architecture and Design, DAD, University of Genova). GeoSpectra s.r.l., carries out studies and research of GIS cartography for the analysis and management of territorial variables to support specific census of the geological, compositional, physico-chemical and historical-cultural components of the territory, aimed at the analysis of environmental criticalities and decision support for territorial marketing. The Spin Off was set up following the approval of the Technical Commission for Spin Off and Patents, and the Academic Senate of the University of Genova, on 19/11/2013.
- Since 2020. Councilor in the Presidency Council of the Italian Society of Mineralogy and Petrology (SIMP)
- Since 2020. Delegate of the University of Genova in the Community of the Beigua Regional Natural Park (Unesco Geopark) and Councilor of the Park Council.