



## Donato Belmonte

Fixed-term assistant professor

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### *Education and training*

2009

#### **M.Sc. Degree in Geology**

Ab initio thermodynamic and thermophysical characterization of oxides and silicates in the system Mg-Si-O - 110/110 cum laude

University of Genova - Genova - IT

### *Academic experience*

2010 - 2012

#### **Ph.D in Computational Geochemistry**

University of Genova - Genova - IT

Ab initio thermodynamics of deep mantle minerals the system MgO-SiO<sub>2</sub>

2013 - 2016

#### **Research Associate (Ricercatore a Tempo Determinato RTD tipo a)**

University of Genova - Genova - IT

2016

#### **Invited Visiting Scientist (Maître de conférences invité) in the framework of IPGP Visiting Professor Program 2016**

Institut de Physique du Globe de Paris (IPGP) - Paris - FR

Combining DFT and computational thermodynamics to predict melting behaviour of dense magnesium silicates in the deep mantle

2016 - ONGOING

#### **Assistant Professor (Ricercatore a Tempo Determinato RTD tipo b) (tenure-track position)**

University of Genova - Genova - IT

2018 - ONGOING

#### **Scientific Habilitation (ASN) to Associate Professor (04/A1 Geochemistry Mineralogy Petrology Volcanology and Georesources)**

Ministero dell'Istruzione dell'Università e della Ricerca (MIUR) - IT

## ***Teaching activity***

Currently, I am lecturer in charge of the 'Volcanology' course for the Master Degree Course (Laurea Magistrale) and co-lecturer of the 'Geochemistry' course for the Bachelor Degree Course (Laurea Triennale) in Geological Sciences at University of Genova.

I was supervisor of 12 B.Sc. Thesis, 6 M.Sc. Thesis and 4 curricular traineeships.

I was Tutor of Mathematics and Physics for the Bachelor Degree Course in Geological Sciences at University of Genova.

## ***Postgraduate research and teaching activity***

### **PhD committees membership**

2017 – Member of the Doctoral Committee, Dottorato di Ricerca in Scienze della Terra Ciclo XXIX, University of Parma (Italy) – Candidates: Claudia Stangarone (Tutors: M.Tribaudino, M. Prencipe), Claudia Gori (Tutor: M. Tribaudino) – Members of the Doctoral Committee: Mario Tribaudino (University of Parma), Gianni Andreozzi (University “La Sapienza” of Rome), Donato Belmonte (University of Genova)

2018 – Member of the Doctoral Committee, Dottorato di Ricerca in Scienze della Terra e dell’Ambiente Ciclo XXXII, University of Pavia – Candidate: Mara Murri (Tutors: M.C. Domeneghetti, M. Prencipe, B. Mihailova, R.J. Angel) – Members of the Doctoral Committee: Andrea Longo (University of Pavia), Fernando Cámara Artigas (University of Milan), Donato Belmonte (University of Genova)

### **Postgraduate (PhD) teaching activity**

Currently, I am lecturer in charge of the 'Introduction to Mineral Physics' course for the Ph.D course in 'Scienze e Tecnologie per l'Ambiente e il Territorio' (STAT), University of Genova.

## ***Research interests***

Ab initio thermodynamics and geochemistry of solids, glasses, fluids, melts  
Computational mineral physics, lattice dynamics and thermochemistry of minerals at high pressure and temperature conditions  
Computational thermodynamics: phase diagrams and melting phase relations in the Earth's deep interior

## ***Grants***

**2008 - 2010**

**PRA 2008 - Thermodynamic properties of aliphatic phases in the system Mg-Si-O-H**

University of Genova - IT

6.500 Euro - Participant

2011 - 2013

**PRA 2011 - Ab initio characterization of seismic discontinuities in the Earth's mantle**

University of Genova - IT

3.500 Euro - Participant

2011 - 2013

**PRIN MIUR 2009 - Topology of phase diagrams and lines of descent in the system NKCMAS-H<sub>2</sub>O-CO<sub>2</sub> and geochemical implications**

Ministero dell'Istruzione dell'Università e della Ricerca (MIUR) - IT

55.000 Euro - Participant

2012 - 2014

**PRA 2012 - Relations between minerals and potentially toxic elements in sulfide ores of Eastern Liguria**

University of Genova - IT

7.259 Euro - Participant

2013

**Lines of descent - Visionair project N. 72**

Visionair (Project funded by the European Commission under Grant Agreement No. 262044) - FR

1.200 Euro - Participant

2013

**AMIU Genova Contract N. 668/2013 - Assessment of geochemical data of aqueous solutions in the waste disposal site of Scarpino (Genova)**

AMIU Genova - IT

20.570 Euro - Participant

2013 - 2015

**PRA 2013 - Thermodynamics of silicate melts at high pressure - Numerical simulations and geochemical implications**

University of Genova - IT

3.011 Euro - Principal investigator

2013 - 2015

**MINERABILIA - Renewal and exposition of mineralogical and geological collections of the Natural History Museum Giacomo Doria of Genova**

Ministero dell'Istruzione dell'Università e della Ricerca (MIUR) - IT

3.500 Euro - Participant

2014 - 2016

**PRA 2014 - Ab initio thermodynamic and crystal-chemical characterization of manganese oxides pyrolusite (MnO<sub>2</sub>) bixbyite (Mn<sub>2</sub>O<sub>3</sub>) and manganosite (MnO)**

University of Genova - IT

5.007 Euro - Principal investigator

2014 - 2016

**IDEAL-E - Dynamic geochemical interactions among aquifers of Liguria - Entella**

IREN and Mediterranea delle Acque - IT

80.000 Euro - Participant

2017 - ONGOING

**FFABR 2017 - Finanziamento MIUR delle Attività Base di Ricerca per Ricercatori Legge 11 dicembre 2016 n. 23**

Ministero dell'Istruzione dell'Università e della Ricerca (MIUR) - IT

3.000 Euro - Principal investigator

2018 - ONGOING

**MATRAC (CNR-IFREMER-University of Genova)**

European Community - Interreg Italy-France Maritime 2014-2020

260.000 Euro - Participant

### ***Editorial activity***

2016 - ongoing – Member of the Editorial Board of *Rivista Mineralogica Italiana*, edited by Gruppo Mineralogico Lombardo - Associazione Italiana di Mineralogia (GML-AIM).

2016 - ongoing – Member of the Editorial Board of the journal *PLINIUS*, Italian Supplement of the *European Journal of Mineralogy*, edited by the Italian Society of Mineralogy and Petrology (SIMP).

I am reviewer for the following ISI journals: *Geochimica et Cosmochimica Acta*, *Chemical Geology*, *Lithos*, *American Mineralogist*, *Zeitschrift für Kristallographie*, *Mineralogical Magazine*, *European Journal of Mineralogy*, *Physics and Chemistry of Minerals*, *Physical Chemistry Chemical Physics*, *Journal of Physics and Chemistry of Solids*, *Nuclear Engineering and Design*, *Computational Materials Science*, *Journal of Applied Physics*.

### ***Assignments abroad***

In 2016 I was invited as *Maître de conférences invité (Invited Visiting Scientist)* at Institut de Physique du Globe de Paris (IPGP) (Paris, France) in the framework of "IPGP – Visiting Professor Program 2016". The title of the research project was: '*Combining DFT and computational thermodynamics to predict melting behaviour of dense magnesium silicates in the deep mantle*'. The results of this research were published on the journal *Chemical Geology* in 2017 (Belmonte, D. et al., 2017, The system MgO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> under pressure: A computational study of melting relations and phase diagrams,

*Chem. Geol.*, 461, 54-64).

### ***Other professional activities***

2014 – Convenor of the session “*Looking inside the planet Earth: Experimental and Computational methods in Mineralogy and Geochemistry*” at the SGI-SIMP 2014 Congress “The Future of the Italian Geosciences - The Italian Geosciences of the Future”, Milan, 10-12 September 2014.

2015 – Convenor of the session “*Experimental and Computational Methods in Mineralogy and Geochemistry*”, at the SIMP-SGI-So.Ge.I.-AIV 2015 Congress “Il Pianeta Dinamico: sviluppi e prospettive a 100 anni da Wagener”, Florence, 2-4 September 2015.

2015 – Chair of the *Poster Session* at the 10th Silicate Melt Workshop, La Petite Pierre (Alsace, France), 13-17 October 2015.

2017 – Convenor of the session “*Computational Geochemistry and Mineral Sciences: new developments and future directions*”, SIMP-SGI-AIV-So.Ge.I. 2017 Congress “Geosciences: a tool in a changing world”, Pisa, 3-6 September 2017.