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6. Kampf, A.R., Roberts, A.C., Venance, K.E., Carbone, C., **Belmonte, D.**, Dunning, G.E., and Walstrom, R.E. (2013) Cerchiaraita-(Fe) and cerchiaraita-(Al), two new barium cyclosilicate chlorides from Italy and California, USA. *Mineralogical Magazine*, 77(1), 69-80, doi: 10.1180/minmag.2013.077.1.07.

7. Bindi, L., Carbone, C., **Belmonte, D.**, Cabella, R., and Bracco, R. (2013) Weissite from Gambatesa mine, Val Graveglia, Liguria, Italy: occurrence, composition and determination of the crystal structure. *Mineralogical Magazine*, 77(3), 475-483.

8. **Belmonte, D.**, Ottonello, G., and Vetuschi Zuccolini, M. (2013) Melting of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> and vitrification of the undercooled alumina liquid: *Ab initio* vibrational calculations and their thermodynamic implications. *J. Chem. Phys.*, 138, 064507.

9. **Belmonte, D.**, Ottonello, G., and Vetuschi Zuccolini, M. (2014) *Ab initio* thermodynamic and thermophysical properties of sapphirine end-members in the join Mg<sub>4</sub>Al<sub>8</sub>Si<sub>2</sub>O<sub>20</sub>-Mg<sub>3</sub>Al<sub>10</sub>SiO<sub>20</sub>. *American Mineralogist*, 99, 1449-1461.

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11. De La Pierre, M., and **Belmonte, D.** (2016) *Ab initio* investigation of majorite and pyrope garnets: Lattice dynamics and vibrational spectra. *American Mineralogist*, 101, 162-174.

12. Scambelluri, M., Bebout, G.E., **Belmonte, D.**, Gilio, M., Campomenosi, N., Collins, N., and Crispini, L. (2016) Carbonation of subduction-zone serpentinite (high-pressure ophicarbonate; Ligurian Western Alps) and implications for the deep carbon cycling. *Earth Planet. Sci. Lett.*, 441, 155-166.

13. **Belmonte, D.**, Gatti, C., Ottonello, G., Richet, P., and Vetuschi Zuccolini, M. (2016) *Ab initio* thermodynamic and thermophysical properties of sodium metasilicate, Na<sub>2</sub>SiO<sub>3</sub>, and their electron-density and electron-pair-density counterparts. *J. Phys. Chem. A*, 120, 8881-8895.

14. **Belmonte, D.**, Ottonello, G., Vetuschi Zuccolini, M., and Attene, M. (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. *Chemical Geology*, 461, 54-64.

15. Zucchini, A., Prencipe, M., **Belmonte, D.**, and Comodi, P. (2017) *Ab initio* study of the dolomite to dolomite-II high-pressure phase transition. *Eur. J. Mineral.*, 29, 227-238.

16. **Belmonte, D.** (2017) First principles thermodynamics of minerals at HP-HT conditions: MgO as a prototypical material. *Minerals*, 7, 183, doi:10.3390/min7100183.

17. **Belmonte, D.**, Ottonello, G., and Vetuschi Zuccolini, M. (2017) *Ab initio*-assisted assessment of the CaO-SiO<sub>2</sub> system under pressure. *CALPHAD*, 59, 12-30.

18. Kampf, A.R., Carbone, C., **Belmonte, D.**, Nash, B.P., Chiappino, L., and Castellaro, F. (2017) Alpeite, Ca<sub>4</sub>Mn<sup>3+</sup><sub>2</sub>Al<sub>2</sub>(Mn<sup>3+</sup>Mg)(SiO<sub>4</sub>)<sub>2</sub>(Si<sub>3</sub>O<sub>10</sub>)(V<sup>5+</sup>O<sub>4</sub>)(OH)<sub>6</sub>, a new ardennite-group mineral from Italy. *European Journal of Mineralogy*, 29, 907-914.

19. Kolitsch, U, Merlino, S., **Belmonte, D.**, Carbone, C., Cabella, R., Lucchetti, G., and Ciriotti, M.E. Lavinskyite-1M,  $K(\text{LiCu})\text{Cu}_6(\text{Si}_4\text{O}_{11})_2(\text{OH})_4$ , the monoclinic MDO equivalent of lavinskyite-2O (formerly lavinskyite), from the Cerchiara manganese mine, Liguria, Italy. *European Journal of Mineralogy*, 30, 811-820.

20. Kampf, A.R., Rossman, G.R., Ma, C., **Belmonte, D.**, Biagioni, C., Castellaro, F., and Chiappino, L., Ramazzoite,  $[\text{Mg}_8\text{Cu}_{12}(\text{PO}_4)(\text{CO}_3)_4(\text{OH})_{24}(\text{H}_2\text{O})_{20}][(\text{H}_{0.33}\text{SO}_4)_3(\text{H}_2\text{O})_{36}]$ , the first mineral with a polyoxometalate cation. *European Journal of Mineralogy*, 30, 827-834.

21. Biagioni, C, **Belmonte, D.**, Carbone, C., Cabella, R., Zaccarini, F. and Balestra, C. (2018) Arsenmedaite,  $\text{Mn}^{2+}_6\text{As}^{5+}\text{Si}_5\text{O}_{18}(\text{OH})$ , the arsenic analogue of medaite, from the Molinello mine, Liguria, Italy: occurrence and crystal structure. *European Journal of Mineralogy*, 31, 117-126.

22. Biagioni, C., **Belmonte, D.**, Carbone, C., Cabella, R., Demitri, N., Perchiazzi, N., Kampf, A.R., and Bosi, F. (2020) Isselite,  $\text{Cu}_6(\text{SO}_4)(\text{OH})_{10}(\text{H}_2\text{O})_4 \cdot \text{H}_2\text{O}$ , a new mineral species from Eastern Liguria, Italy. *Mineralogical Magazine*, 84, 653-661, doi:10.1180/mgm.2020.50.

23. Haws, A.A., Starr, P.G., Dragovic, B., Scambelluri, M., **Belmonte, D.**, Caddick, M.J., Broadwell, K.S., Ague, J.J., and Baxter, E.F. (2021) Metarodingite dikes as recorders of subduction zone metamorphism and serpentinite dehydration: Voltri Ophiolite, Italy. *Chemical Geology*, 120077, doi: <https://doi.org/10.1016/j.chemgeo.2021.120077>

24 papers, 1 accepted paper, 373 citations, H-index 13, H-10-index 11

#### SELECTED TALKS

1. **Belmonte, D.**, Ottonello, G., and Vetuschi Zuccolini, M. (2009) *Ab initio* thermal expansion, the mode-gamma analysis in the quasi-harmonic approximation: some examples of application in the Mg-Si-O system. CALPHAD XXXVIII, Prague (Czech Republic), 17-22 May 2009.

2. **Belmonte, D.**, Civalleri, B., Ganguly, J., Ottonello, G., and Vetuschi Zuccolini, M. (2010) *Ab initio* calculation of seismic velocities of phase AnhB ( $\text{Mg}_{14}\text{Si}_5\text{O}_{24}$ ) and implication for the 300 km discontinuity in the Earth's mantle. International Mineralogical Association 20<sup>th</sup> General Meeting (IMA2010), Budapest (Hungary), 21-27 August 2010.

3. **Belmonte, D.** (2010) *Ab initio* thermodynamics: from lattice vibrations to phase equilibria calculation. Department of Earth Sciences, University of Torino (Italy), 19<sup>th</sup> November 2010 (invited seminar)

4. **Belmonte, D.**, Ottonello, G., and Vetuschi Zuccolini, M. (2011) First principles thermodynamics of oxides and silicates in the Mg-Si-O system: application to phase equilibria calculation at high pressures and temperatures. DGK-DMG-ÖMG Joint Meeting – Crystals, Minerals and Materials, Salzburg (Austria), 20-24 September 2011.

5. **Belmonte, D.** (2013) Effects of thermophysical parameterization on phase diagrams topology at high pressure and temperature: insights from ab initio calculations. Colloquium on the build-up of petrological phase diagrams, Santa Margherita (Italy), 28<sup>th</sup> March 2013 (invited lecture).

6. **Belmonte, D.** (2013) *Ab initio* thermodynamics: from lattice vibrations to phase equilibria calculation. Department of Earth Sciences, University of Perugia (Italy), 17<sup>th</sup> April 2013 (invited seminar).

7. **Belmonte, D.** (2013) *Ab initio* thermodynamics of minerals at deep Earth

conditions. Department of Chemistry, University of Torino (Italy), 24<sup>th</sup> April 2013 (invited seminar).

8. **Belmonte, D.**, Ottonello, G., and Vetuschi Zuccolini, M. (2014) Ab initio thermodynamics and seismic properties of MgSiO<sub>3</sub> polymorphs at mantle transition zone conditions: the geodynamic role of non-olivine phases. European Geosciences Union General Assembly 2014 (EGU2014), Vienna (Austria), 27<sup>th</sup> April – 2<sup>nd</sup> May 2014.

9. **Belmonte, D.** (2014) Quantum Geochemistry: simulating physico-chemical properties of materials in the deep Earth. Italian Institute of Technology (IIT), Genova, Italy, 31<sup>st</sup> March 2014 (invited seminar).

10. **Belmonte, D.** (2014) Schrödinger the Earth: how computational thermodynamics reveal deep Earth's mineralogy". International Year of Crystallography (YCr 2014), Palermo (Italy), 19<sup>th</sup> December 2014 (invited seminar).

11. **Belmonte, D.** (2015) Thermodynamics and phase diagrams calculation at high pressure and temperature: theory and practice. School on "Mineral Physics: practical applications and geological implications", Brixen (Italy), 2-5 February 2015 (invited lecture).

12. **Belmonte D.**, Ottonello, G. (2015) First principles thermodynamic analysis of the MgO-SiO<sub>2</sub> system. SMEC 2015, Fort Lauderdale (Florida, USA), 8-15 March 2015.

13. **Belmonte, D.**, Ottonello, G., and Vetuschi Zuccolini, M. (2015) Performance of hybrid density functionals in predicting thermodynamic properties of minerals at high pressure and high temperature. CALPHAD XLIV - International Conference on Computer Coupling of Phase Diagrams and Thermochemistry, Loano (Italy), 31<sup>st</sup> May – 5<sup>th</sup> June 2015.

14. **Belmonte, D.**, Ottonello, G., Vetuschi Zuccolini, M. (2015) Combining DFT and computational thermodynamics to predict melting phase relations in MgO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> system at deep mantle conditions. 10<sup>th</sup> Silicate Melt Workshop, La Petite Pierre (Alsace, France), 13-17 October 2015 (invited talk)

15. **Belmonte, D.** (2016) Quantum Geochemistry: theoretical prediction of melting behaviour and phase relations of minerals in the deep mantle. Institute de Physique du Globe de Paris (IPGP), Paris (France), 23<sup>rd</sup> May 2016 (invited seminar).

16. **Belmonte, D.** (2016) Ab initio thermodynamics of deep mantle processes: the mineral physics perspective. School on "Modelling the mineralogical world: how and why", University "La Sapienza", Roma (Italy), 14<sup>th</sup> June 2016 (invited lecture).

17. **Belmonte, D.**, Ottonello, G., Vetuschi Zuccolini, M., and Attene, M. (2016) Theoretical prediction of melting relations in the deep mantle: the phase diagram approach. American Geophysical Union AGU 2016, San Francisco (USA), 13<sup>th</sup> December 2016 (invited talk)

18. **Belmonte, D.** (2017) Unraveling chemical complexity in solid solutions: the interplay between experimental and computational investigation. XLVI Meeting of the Italian Crystallographic Association (AIC), Perugia (Italy), 28<sup>th</sup> June 2017 (keynote talk)

19. **Belmonte, D.** (2019) Computational mineralogy: from atomic to global-scale processes. Symposium SIMP-AIC in honour of "Fiorenzo Mazzi, pioniere

	<p>della Cristallografia Italiana”, Pavia (Italy), 14<sup>th</sup> June 2019 (invited talk)</p> <p>20. <b>Belmonte, D.</b> (2019) Thermodynamics, elasticity and phase stability of grossite (CaAl<sub>4</sub>O<sub>7</sub>) at high pressure and temperature. MISCA V 2019 – Fifth Meeting of the Italian (AIC) and Spanish Crystallographic (GE3C) Associations, Napoli (Italy), 6<sup>th</sup> September 2019 (invited talk)</p> <p>21. <b>Belmonte, D.</b> (2019) Ab initio thermodynamics of deep mantle phase transitions and seismic discontinuities: the role of MgSiO<sub>3</sub> polymorphs. General Meeting SIMP-SGI-SoGeI Parma 2019, Parma (Italy), 18<sup>th</sup> September 2019 (keynote talk)</p> <p>22. <b>Belmonte, D. &amp; Ottonello, G.</b>(2019) <i>Thermodynamics and melting phase relations of MgSiO<sub>3</sub> polymorphs at mantle transition zone conditions: a first principles assessment</i>. 11<sup>th</sup> Silicate Melt Workshop, La Petite Pierre (Alsace, France), 3<sup>rd</sup> October 2019 (invited talk)</p>
<p><b><u>AWARDS</u></b></p>	<p>2013 – Award by Società Italiana di Mineralogia e Petrografia (SIMP) for the best Ph.D Thesis [announcement in ELEMENTS, 2013, 9(6), p. 460].</p> <p>2018 – Outstanding Contribution in Reviewing Award by the Journal of Physics and Chemistry of Solids (Elsevier)</p>
<p><b><u>FUNDED PROJECTS AND GRANTS</u></b> (as PI or co-PI)</p>	<p>2019 – ongoing PRIN 2017 “Oceanic Megatransforms: a New Class of Plate Boundaries” (Project No. 2017KY5ZX8) - Progetti di Ricerca di Rilevante Interesse Nazionale, funded by Ministero dell'Istruzione dell'Università e della Ricerca (MIUR) (as co-PI).</p> <p>2021 – ISCRA CINECA – Class C Projects, “THOMMY – THERMODYNAMICS OF MELTING IN MULTI-COMPONENT SYSTEMS” (Project HP10CNF2NR), N. 2000 CPU hours on HPC MARCONI100 supercomputer at CINECA (as co-PI)</p> <p>2020 – 2021 Progetto di Innovazione Didattica, Ateneo di Genova (as co-PI).</p> <p>2018 – 2020 FFABR 2017 - Finanziamento MIUR delle Attività Base di Ricerca per Ricercatori Legge 11 dicembre 2016 n. 23, funded by Ministero dell'Istruzione dell'Università e della Ricerca (MIUR) (as PI).</p> <p>2014 – 2016 Progetto di Ateneo PRA2014 “Ab initio thermodynamics and crystal chemistry of the manganese oxides pyrolusite (MnO<sub>2</sub>), bixbyite (Mn<sub>2</sub>O<sub>3</sub>) hausmannite (Mn<sub>3</sub>O<sub>4</sub>) and manganosite (MnO)” (as PI).</p> <p>2013 – 2015 Progetto di Ateneo PRA2013 “Thermodynamics of silicate melts at high pressure: numerical modelling and implications for magmas” (as PI).</p>
<p><b><u>TEACHING &amp; TUTORING</u></b></p>	<p>2015 - present – Lecturer: Geochemistry (9 CFU), University of Genova, Italy.</p> <p>2016 - present – Lecturer: Volcanology (6 CFU), University of Genova, Italy.</p> <p>2019 - present – Co-lecturer: Mineralogy (2 CFU), University of Genova, Italy.</p> <p>2013-2015 – Co-Lecturer: Idrogeochemistry (2 CFU), University of Genova, Italy.</p> <p>2012-2013 – Tutor of Physics and Mathematics, University of Genova, Italy.</p> <p>2013 - present – Advisor and Co-advisor of 16 B.Sc. and 10 M.Sc. Thesis</p>

	<p>(undergraduate and graduate level).</p> <p>2019 – present – Ph.D Committee and Teaching Board of the Science and Technologies for the Earth and Environment (STAT) Ph.D Course, University of Genova.</p> <p>Supervisor of 1 Ph.D Thesis:</p> <p>2020 - present – Mattia La Fortezza, Ph.D project: “<i>Probing the role of MgSiO<sub>3</sub> polymorphs in deep mantle processes</i>” (funded by University of Genova)</p> <p>Supervisor of 1 Post-doc project:</p> <p>2021 - 2022 – Francesca Menescardi, Post-doc project: “<i>Thermodynamics of melting processes in multi-component silicate systems</i>” (funded by MIUR-PRIN 2017 Project)</p> <p><b><u>ORGANIZATION OF CONFERENCE AND SYMPOSIA</u></b></p> <p>2014: Convener of the symposium “Looking inside the planet Earth: Experimental and Computational Methods in Mineralogy and Geochemistry” SGI-SIMP Congress 2014, Milan (Italy), 10-12 September 2014.</p> <p>2015: Convener of the symposium “Experimental and Computational Methods in Mineralogy and Geochemistry”, SIMP-SGI-SOGEI-AIV Congress 2015, Florence (Italy) 2-4 September 2015.</p> <p>2015: Convenor of the "Poster Session" at the 10<sup>th</sup> Silicate Melt Workshop, La Petite Pierre (Alsace, France), 13-17 October 2015.</p> <p>2017: Convener of the symposium “Computational Geochemistry and Mineral Sciences: new developments and future perspectives” SIMP-SGI-AIV-SOGEI Congress 2017, Pisa (Italy), 3-6 September 2017.</p> <p>2019: Convenor of the "Poster Session" at the 11<sup>th</sup> Silicate Melt Workshop, La Petite Pierre (Alsace, France), 1-5 October 2019.</p> <p>2019: Convener of the symposium “Integrated mineralogy, petrology and computational modelling to decipher geochemical interactions and tectonic histories recorded by metamorphic rocks from the deep Earth” SIMP-SGI-SoGeI Congress 2019, Parma (Italy), 16-19 September 2019.</p> <p>2019: Organizing Committee of the workshop “Earth Sciences PhD days – Second Edition” SIMP-SGI-SoGeI Congress 2019, Parma (Italy), 16 September 2019.</p>
<p><b><u>PROFESSIONAL ACTIVITY</u></b></p>	<p>Reviewer for ISI Journals: <i>Geochimica et Cosmochimica Acta</i>, <i>Chemical Geology</i>, <i>Journal of Geophysical Research: Solid Earth</i>, <i>ACS Earth and Space Chemistry</i>, <i>Lithos</i>, <i>American Mineralogist</i>, <i>Acta Crystallographica B</i>, <i>Zeitschrift für Kristallographie</i>, <i>Mineralogical Magazine</i>, <i>European Journal of Mineralogy</i>, <i>Physics and Chemistry of Minerals</i>, <i>MDPI Journals (Minerals, Condensed Matter, Applied Sciences)</i>, <i>CALPHAD: Computer Coupling of Phase Diagrams and Thermochemistry</i>, <i>Physical Chemistry Chemical Physics</i>, <i>Journal of Chemical Physics</i>, <i>Journal of Applied Physics</i>, <i>Physics Letters A</i>, <i>Physica A: Statistical Mechanics and its Applications</i>, <i>Journal of Physics and Chemistry of Solids</i>, <i>Computational Materials Science</i>, <i>European Physical Journal B</i>, <i>Frontiers of Chemical Science and Engineering</i>, <i>Nuclear Engineering and Design</i>, <i>Marine and Petroleum Geology</i>.</p> <p>2013 - present – Head of the Laboratory of Computational Geochemistry at</p>

	<p>DISTAV, University of Genova</p> <p>2020 - 2023 – Rector’s Delegate for UniGe and Member of the Scientific Committee of the National Museum of Antarctica (MNA) – University of Genova, Siena and Trieste (nota rettorale Prot. n. 88489 del 30.12.2019)</p> <p>2019 – current – Member of the PhD Committee and Teaching Board, Doctoral Course in Sciences and Technologies for the Earth and Environment (STAT), University of Genova (Italy)</p> <p>Member of PhD Committees:</p> <p>2017 – Ph.D Course in Earth Sciences, Cycle XXIX, University of Parma (Italy), Candidates: Claudia Stangarone, Claudia Gori.</p> <p>2020 – Ph.D Course in Earth Sciences, Cycle XXXII, University of Pavia, Candidates: Mara Murri, Mattia Bonazzi, Gabriele Zaffiro, Yuri Panara.</p> <p>2020 – Ph.D Course in Earth Sciences, Cycle XXXII, University of Padova, Candidates: Jacopo Nava, Marta Cosma, Marco Crivellaro, Nico Dalla Libera, Simone Papa, Simone Molinari, Jacopo Amalfitano, Xia Li.</p>
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