CHIARA ELMI, Ph.D.
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CURRENT POSITION

Post-doctoral Fellow, Smithsonian Institute, Department of Mineral Sciences Aug 2017 - present
Advisors: Jeffrey Post and Peter Heaney

- Investigation of the effects of pH (2−9) on the structural symmetry and the Mn oxidation state ratios in synthetic and naturally occurring Ca-birnessites combining X-ray diffraction analyses (XRD), environmental scanning electron microscopy (ESEM), electron microprobe microanalysis (EMPA), X-ray photoelectron spectroscopy (XPS), Raman spectroscopic measurements.

EDUCATION

Ph.D., University of Modena and Reggio Emilia (Italy) 2011

- PhD Multiscale Modelling, Computational Simulations and Characterization in Material & Life Sciences
- Concentrations: mineralogical crystallography, environmental mineralogy, materials characterization
- Thesis: Crystal chemistry and surface features of minerals with six- and eight-membered tetrahedral rings
- Thesis Advisor: Prof. Maria Franca Brigatti, Dept. of Chemical and Geological Sciences

M.Sc., University of Modena and Reggio Emilia (Italy) 2007

- M.Sc. in Earth Sciences, Marks: 110/110 *cum laude*
- Concentrations: mineralogy, geochemistry, health Impacts of minerals, raw materials characterization
- Thesis: Riciclo di materiali contenenti amianto (MCA) inertizzati termicamente in materiali plastici e in laterizi (in Italian)

B.Sc., University of Modena and Reggio Emilia (Italy) 2005

- B.Sc. in Earth Sciences, Marks: 106/110
- Concentrations: mineralogy and raw materials, geochemistry, ceramic and tiles characterization
- Thesis: Studio di pigmenti blu al cobalto da massa per grés porcellanato (in Italian).

RESEARCH INTERESTS

- Morphological, chemical, and structural features of mineral surfaces as revealed by X-ray photoelectron spectroscopy (XPS), atomic force microscopy (AFM), and scanning electron microscopy (SEM);
- Single crystal X-ray diffraction (SC-XRD), X-ray powder diffraction (qualitative and quantitative via Rietveld method) (P-XRD), and X-ray Fluorescence (XRF) for raw material characterization;
- Determination of inorganic phase transitions by high-temperature X-ray powder diffraction (XRD) and thermal analyses;
- Reactivity of asbestos, clay minerals, and phyllosilicates;
- Mineralogical, physical, and chemical characterization of pigments for ceramics and tiles;
- Thermal range, phase transitions, and chemical changes occurring in lightning-strike rocks;
- XRD, rheological and organoleptic properties of food crystals.

RESEARCH EXPERIENCE

Ph.D. Thesis research, University of Modena and Reggio Emilia (Italy) 2008-2011

- Studied rare silicates and phyllosilicates crystal chemistry by SC-XRD and P-XRD, electron microprobe analysis (EMPA), and SEM.
- Conducted experiments in X-ray photoelectron spectroscopy (XPS) and X-ray Absorption Spectroscopy (XAS) to investigate surface crystal chemistry of rare silicates and phyllosilicates.

Postdoctoral Research fellow, University of Modena and Reggio Emilia (Italy) 2011-2014

- Used SC-XRD and P-XRD, SEM, and XPS to investigate crystal chemical relationships between bulk and surface of phyllosilicates.

Short term Visiting Research Scholar, University of Illinois at Chicago Apr 2012
Sept-Oct 2013
Aug-Oct 2014

- Investigated crystal structure of phyllosilicates and clay minerals using X-ray Diffraction methods

Post-doctoral Researcher, University of Pennsylvania Nov 2015-Jul 2017

- Used powder X-ray diffraction (P-XRD), optical microscopy, Scanning Electron Microscopy (SEM), and Electron Microprobe analysis (EMPA) to study the thermal range of conditions, phase transitions, and chemical changes occurring in lightning-strike rocks (rock fulgurite).
- Set-up a lightning laboratory experiment: 1) to simulate real-world lightning propagation and effects on different materials; 2) to improve the quality of the insulation to protect electrical power lines from Cloud to Ground lightning strike.
- Training graduate and undergraduate students in the use of X-ray powder diffractometer

INDUSTRIAL RESEARCH EXPERIENCE

Laboratory Based Research Internship, RIALTI srl, Sesto Calende (Italy) Mar-Apr 2007

- Knowledge of common laboratory techniques for characterising inert raw materials for polypropylene compounds

Laboratory Research Scientist, R&D Laboratory of SACMI Imola S.C. Jun 2006

- Used HT-XRPD and thermal analyses for studying the evolution of asbestos phases during the increase of temperature to obtain new phases harmless for human health;
- Performed design and product development of bricks to establish innovative solutions for recycling thermal treated asbestos phases;
- Conducted investigations into defects, rheological and mechanical properties of new brick product.
- Used XRD, and SEM to analyse defects, morphological, micro-structural, and chemical features.

Research Scientist, RIPA BIANCA spa, Santarcangelo di Romagna (Italy) Jun 2006

- Investigated mining & raw materials for brick industry, development of brick production practice.

Laboratory Based Research Internship, FERRO ITALIA srl, Fiorano Modenese (Italy) Mar-Jun 2005

- Used common laboratory techniques for producing new pigments for ceramics and tiles

RESEARCH PROJECT

Co-investigator

International Project "The relationships of bulk structure. Surface structure, chemistry, and physical properties of mineral phases with six-membered silicate rings" assigned by Fondazione Cassa di Risparmio di Modena. Principal investigators: M.F. Brigatti, S. Guggenheim 2009

National Project "Phyllosilicates with a particular petrological interest: chemical and physical features and variability in natural and simulated environments" assigned by Ministero dell' Istruzione, dell' Universitá e della Ricerca (Italy). Principal investigator: M.F. Brigatti 2008

Grant writing experience

Wrote successful access proposal to work with Single-crystal grazing incidence X-ray diffraction at ESRF (European Synchrotron Radiation Facility), Grenoble, France. 2008 2009

Wrote successful access proposal to work with X-Ray Absorption Spectroscopy at BEAR Beamline at ELETTRA (Sincrotrone Trieste), Trieste (Italy). 2008 2009

Contributed to annual report writing for the International Project assigned by Fondazione Cassa di Risparmio di Modena 2009 2010 2011

RESEARCH TRAINING

Short schools and courses

"CCMX Summer School 2009 - Modelling in materials science: theory and applications", École Polytechnique Fédérale de Lausanne (EPFL), Switzerland. 2009

Theoretical and practical Course on "Preparation of samples for Transmission Electron Microscope", Modena (Italy) organized by Centro Interdipartimentale Grandi Strumenti (CIGS), University of Modena and Reggio Emilia. 2009

"CCMX Winter School 2009 - Surface Science: Fundamentals, Properties & Selected Applications", Hôtel du Pillon, Les Diablerets (Switzerland) 2009

Basic Course on "Management of intellectual and industrial properties", Modena organized by Institute Liaison Office (ILO), University of Modena and Reggio Emilia. 2008

"Summer School on Mathematical and Theoretical Crystallography", Palazzo Feltrinelli, Gargnano (Brescia, Italy) 2008

Theoretical and practical Course on "Scanning Probe Microscopy (SPM) and Atomic Force Microscopy (AFM)", Modena (Italy) organized by Centro Interdipartimentale Grandi Strumenti (CIGS), University of Modena and Reggio Emilia 2008

Workshops

"Reology applied in ceramics field" organized by Associazione Costruttori Italiani Macchine Attrezzature per Ceramica (ACIMAC), Fiorano Modenese, Modena (Italy). 2007

"Environmental Scanning Electron Microscopy and confocal laser microscopy", Modena (Italy) organized by Centro Interdipartimentale Grandi Strumenti (CIGS), University of Modena and Reggio Emilia 2007

PUBLICATIONS

Peer-reviewed journal articles

1. D. Malferrari, M. F. Brigatti, **C. Elmi**, A. Laurora, G. Valdrè (2009) Layer charge and heavy metals structures in hydrated 2:1 silicates: state of the art and new advances on Cadmium, *Zeitschrift für Kristallographie*, 224, 311-315.
2. **C. Elmi**, M.F. Brigatti, L. Pasquali, M. Montecchi, A. Laurora, D. Malferrari, S. Nannarone (2010) Crystal chemistry, surface morphology and X-ray photoelectron spectroscopy of Fe-rich osumilite from Mt. Arci, Sardinia (Italy). *Physics and Chemistry of Minerals*, 37, 561-569.
3. D. Malferrari, M.F. Brigatti, **C. Elmi**, A. Laurora (2011) Determination of Hg binding forms in contaminated soils and sediments: state of the art and a case study approaching abandoned mercury mines from Mt. Amiata (Siena, Italy). *Neues Jahrbuch für Mineralogie – Abhandlungen*, 188, 65-74.
4. **C. Elmi**, M.F. Brigatti, L. Pasquali, M. Montecchi, A. Laurora, D. Malferrari, S. Nannarone (2011) High temperature vesuvianite: crystal chemistry and surface considerations. *Physics and Chemistry of Minerals*, 38, 459-468.
5. G. Elmi & **C. Elmi** (2011) Análisis comparativo de los bilance energéticos para optimización del proceso de producción de ladrillos (in Spanish, abstract in English). *Ceramica y cristal*, 144, 48-51.
6. **C. Elmi** (2011) Crystal chemistry and surface features of minerals with six- and eight-membered tetrahedral rings. *Plinius*, 37, 76-80.

7. **C. Elmi** (2012). Estudio sobre el grado de reacción de los pigmentos de cobalto azul para gres porcelánico. *Ceramica Y Cristal*, 145, 23-26.
8. D. Malferrari, A. Laurora, **C. Elmi**, M.F. Brigatti, L. Medici, M.C. Zeqireja (2012) Channel sediments characterization and evaluation of its potential impact of Fe-rich phases on use of sediments in brick production. *Environmental Engineering Science*, 29(9), 840-847.
9. **C. Elmi**, M.F. Brigatti, S. Guggenheim, L. Pasquali, M. Montecchi, D. Malferrari, S. Nannarone (2013) Sodian muscovite-2M1: crystal chemistry and surface features. *Canadian Mineralogist*, 51, 5-14.
10. **C. Elmi**, M.F. Brigatti, S. Guggenheim, L. Pasquali, M. Montecchi, S. Nannarone (2014) Crystal chemistry and surface configurations of two polylithionite-1M. *American Mineralogist*, 99, 2049–2059.
11. **C. Elmi**, M.F. Brigatti, S. Guggenheim, L. Pasquali, M. Montecchi, S. Nannarone (2014) Crystal chemistry and surface configurations of two iron-bearing trioctahedral mica-1M polytypes. *Clays and Clay Minerals*, 62, 243-252.
12. G. Sighinolfi, **C. Elmi**, R. Serra, G. Contini (2014) High density silica phases as evidence of small-scale hypervelocity impacts: the Gebel Kamil crater (Egypt). *Periodico di Mineralogia*, 83(3), 299-312.
13. **C. Elmi** (2015) Relationship between sugar content, total acidity, and crystal by-products in the making of Traditional Balsamic Vinegar of Modena. *European Food Research and Technology*, 241, 367–376.
14. M.F. Brigatti, M. Affronte, **C. Elmi**, D. Malferrari, A. Laurora (2015) Trioctahedral Fe-rich micas: Relationships between magnetic behavior and crystal chemistry. *American Mineralogist*, 100, 2231–2241.
15. M.F. Brigatti, **C. Elmi**, S. Guggenheim, D. Malferrrari, M. Poppi (2016) An alternative method of calculating cleavage energy: the effect of ion clusters in micas. *American Mineralogist*, 101, 2738–2746.
16. **C. Elmi**, S. Guggenheim, R. Gierè (2016) Surface crystal chemistry of phyllosilicates and related techniques: a review. *Clays and Clay Minerals*, 64, 537–551.
17. **C. Elmi**, J. Chen, D. Goldsby, R. Gieré (2017) Mineralogy and chemistry of lightning-struck rocks: A study of fulgurites from Mount Mottarone, Baveno (Italy). *American Mineralogist*, 102, 1470–1481.
18. J. Chen, **C. Elmi**, D. Goldsby, R. Gieré (2017) Generation of shock lamellae by lightning-induced shock wave and electrical melting. (**In Press**)
19. R.D. Valletta, J.K. Willenbring, S. Passchier, **C. Elmi** (2017) $^{10}Be/^{9}Be$ ratios reflect East Antarctic Ice Sheet mass changes: a record offshore the Wilkes Subglacial Basin. (In preparation)
20. **C. Elmi**, N. Coleman, C. Nwankpa, E. Schruba (2017) Experimental simulation of the last stage of cloud-to-ground lightning stroke on rocks. (In preparation)

Book Chapters

1. M.F. Brigatti, D. Malferrari, A. Laurora, **C. Elmi** (2011) Structure and mineralogy of layer silicates: recent perspectives and new trends. *EMU Notes in Mineralogy*, 11, 1–71. doi: 10.1180/EMU-notes.11.

Conference contributions

Orals (*Presenting author if other than self)

1. M.J. O'Shea*, S.J. Haber, **C. Elmi**, D.R. Vann, R. Gieré (2017) Mineralogical and chemical characterization of road dust in Philadelphia, PA. Submitted to GSA2017 Annual meeting of Geological Society of America, 22-25 October 2017 Seattle, WA, USA
2. R.D. Valletta, J.K. Willenbring*, S. Passchier, **C. Elmi** (2017) $^{10}Be/^{9}Be$ ratios reflect East Antarctic Ice Sheet mass changes: a record offshore the Wilkes Subglacial Basin. The 14th International Conference on Accelerator Mass Spectrometry, Ottawa, Canada, Abstract n. 156
3. **C. Elmi**, J. Chen, D. Goldsby, R. Gieré (2016). Lightning strike glasses: thermodynamical effects on the formation of rock fulgurite from Baveno-Mottarone (Italy). Geological Society of America Abstracts with Programs. Paper No. 290-14, Vol. 48(7) doi: 10.1130/abs/2016AM-282716. GSA2016 Annual meeting of Geological Society of America, 25-28 September 2016 Denver, CO, USA.
4. **C. Elmi**, M.F. Brigatti, S. Guggenheim, L. Pasquali, M. Montecchi, S. Nannarone (2013) Fe-rich trioctahedral micas crystal chemistry: evidence of structure relaxation and Fe avoidance at the surface. 50th Anniversary Annual Meeting of Clay minerals Society, October 6-10 2013, Book of Abstracts, p. 56
5. **C. Elmi**, M.F. Brigatti, L. Pasquali, M. Montecchi, S. Nannarone, D. Malferrari (2011) Crystal chemistry and surface features of a 2M1 paragonitic muscovite. Epitome-Geoitalia2011, 4, 218. doi: 10.1474/Epitome.04.0806.Geoialia2011
6. **C. Elmi**, M.F. Brigatti, L. Pasquali, M. Montecchi, S. Nannarone, A. Laurora, D. Malferrari (2010) The relationships of bulk structure, surface structure, chemistry, and physical properties of mineral phases with six- and eight-membered silicate rings. Acta Mineralogica-Petrographica Abstract Series, 6, 710
7. D. Malferrari*, M.F. Brigatti, **C. Elmi**, A. Marcelli, W. Chu, Z. Wu (2008) Effect of temperature on Hg- and Hg-cysteine complexes in vermiculite and montmorillonite interlayer. 1st SIMP-AIC Joint Meeting, Sestri Levante (GE), Sestri Levante, September 8-12, 2008, Book of abstracts, 187

Posters (*Presenting author if other than self)

1. **C. Elmi**, P. Garra, A. Dieterlen, G. Trouvé, V. Dietze, R. Gieré (2017) Biogenic silica and heavy-metals in cyclone ash from *Miscanthus sinensis* – a potential risk? 12th Annual Center of Excellence in Environmental Toxicology (CEET) Symposium, 19th June 2017, University of Pennsylvania
2. M. O'Shea*, **C. Elmi**, S. Haber, R. Gierè (2017) Urban Road Dust: A geochemical and public health assessment in Philadelphia, PA. 12th Annual Center of Excellence in Environmental Toxicology (CEET) Symposium, 19th June 2017, University of Pennsylvania
3. **C. Elmi**, J. Chen, D. Goldsby, R. Gieré* (2016) A coupled analytical and theoretical investigation of rock fulgurites. 2nd European Mineralogical Conference 2016, 11–15 September 2016, Rimini, Italy.
4. R.D. Valletta*, J.K. Willenbring, S. Passchier, **C. Elmi** (2016) Can we apply the 10Be/9Be flux tracer to marine sediments along glaciated margins? AGU2016 Fall meeting of American Geophysical Union, 12-16 December 2016, San Francisco, CA, USA
5. J. Chen*, **C. Elmi**, D. Goldsby, R. Gieré (2016) Petrified lightning: the role of bubbles in the physical and chemical processes leading to formation of rock fulgurites. AGU2016 Fall meeting of American Geophysical Union, 12-16 December 2016, San Francisco, CA, USA

6. **C. Elmi**, M.F. Brigatti, D. Malferrari (2011) Layer charge location in layer silicates and its implications. Epitome-Geoitalia2011, 4, 220. doi: 10.1474/Epitome.04.0812.Geoialia2011
7. **C. Elmi**, M.F. Brigatti, D. Malferrari, G.R. Castro, P. Ferrer Escorihuela, J. Rubio-Zuazo (2010) Surface structure of natural muscovite. Acta Mineralogica-Petrographica Abstract Series, 6, 753.
8. D. Bortolotti, M.F. Brigatti, **C. Elmi**, D. Malferrari*, E. Pattuzzi (2010) Relationship between morphological preferred orientations and landslides. Acta Mineralogica-Petrographica Abstract Series, 6, 856.
9. **C. Elmi**, M.F. Brigatti, D. Malferrari, G.R. Castro, P. Ferrer Escorihuela, J. Rubio-Zuazo (2009) Relationships between bulk and surface structure of muscovite. Epitome-Geoitalia2009, 3, 15. doi: 10.1474/Epitome.03.0050.Geoialia2009
10. **C. Elmi**, M.F. Brigatti, L. Pasquali, M. Montecchi, A. Laurora, D. Malferrari, S. Nannarone (2009) Osumilite from Mount Arci (Sardinia, Italy): bulk and surface crystal chemistry. Epitome-Geoitalia2009, 3, 435. doi: 10.1474/Epitome.03.0050.Geoialia2009
11. M.F. Brigatti, **C. Elmi**, A. Laurora, D. Malferrari, L. Medici* (2009) Combined mineralogical and EXAFS characterization of polluted sediments for the definition of technological variables and constraints. Geophysical Research Abstracts, 11. EGU2009-8758-1
12. **C. Elmi**, M.F. Brigatti, D. Malferrari, G. Valdrè, G.R. Castro, J. Rubio-Zuazo (2008) Clinochlore structure and its surface interactions with organic molecules. 1st SIMP-AIC Joint Meeting, Sestri Levante (GE), September 7-12, 2008, Book of abstracts, 197

Invited Lecture

1. September 2016. University of Pennsylvania. “Effects of Lightning Strikes on Pink Granite”

TEACHING AND MENTORING

University teaching experience

Full-time Adjunct Professor in the Course “Teaching qualification on Math and Science for teachers of 1st grade of secondary school (10-13 years old)” Spring 2014 Spring 2015

- Created and developed course “Teaching methods in Earth Sciences” for future teachers of Math and Science at Middle school.
- Syllabus: General introduction on teaching tools applied to Earth Sciences: quality learning and effective communication strategies through laboratory activities. Scientific method, Theoretical and practical aspects of issues of wide interest in the field of Earth Sciences: Plate tectonics; Materials of the Earth's crust: the rocks; Laboratory of macroscopic recognition of rocks; Principles of mineralogy; The rock-forming minerals; Fossils.
- Organized a field trip at Nirano’s mud volcanoes (Italy) to increase the knowledge of the natural reserves in the living area and to introduce the concepts of volcanism and pseudo-volcanism, plate tectonics, and in-depth analysis on the use of the greenhouse gas methane.
- Supervisor of n. 7 theses on teaching methods applied to Earth Sciences.

Assistant Instructor, University of Modena and Reggio Emilia 2009-2014

- Taught 1/3 of lectures, co-designed and created new lab component for undergraduate course entitled "Mineralogy" in the Bachelor Major Course of study "Natural Sciences" and "Chemistry"
- Taught 1/3 of lectures, co-designed and created new lab component for graduate-level course entitled "Environmental Mineralogy" in the Master Major Course of study "Environmental Sciences" and "Mineralogy for Chemists" in the Master Major Course of study "Chemical Sciences"

Awards

Pronounced expert in Mineralogy, University of Modena and Reggio Emilia. 2009

Mentorship of undergraduate and graduate students

Directly trained n. 6 undergraduate students during their internships and co-supervised n. 7 undergraduate theses. 2009-2015

Directly supervised n. 5 graduate students in XRD lab experiments, data reduction, and interpretation 2015-2017

Middle school teaching experience

Short term teacher of Math and Science at secondary school (students of 10-13 years old) 2014/2015

Short-term teacher assistant of a boy of 10 years old with disability certification. Oct-Nov 2014

- Prepared simplified lessons on mathematical sets and on measurement units using simple instruments (i.e., scale, ruler, etc.) and everyday objects (i.e., a glass, a bottle, etc.)
- Improved his self-confidence and to impart an awareness to be even more independent in his everyday life

TEACHING TRAINING

Courses

Active Learning in Science, technology, engineering, and mathematics (STEM) Classes, University of Pennsylvania 2016

- Syllabus: i) Using Active Learning to Achieve Your Goals; Facilitating Productive Student Interactions In Class; ii) Aligning Student Assessment with Active Learning Goals; iii) Designing an Active Learning Experience

Zanichelli Editore training network - Mathematics and Science advanced level (students 10-13 years old). 2015

- Syllabus: i) Expansion of the digital book in a logbook class through links to documents on the web; ii) Advanced instructional design with multimedia; iii) Integration of multimedia in the verification of learning; iv) Using publishing environments shared ideas and resources; v) Use of digital online tutor or educational games for the enhancement of learning.

Zanichelli Editore training network - Science advanced level (students 14-19 years old). 2015

- Syllabus: i) Expansion of the digital book in a logbook class through links to documents on the web; ii) Advanced instructional design with multimedia; iii) Integration of multimedia in the proof of learning; iv) Using publishing environments shared ideas and resources; v) Use of digital online tutor or educational games for the enhancement of learning.

Workshops

Engaging Students Through Technology Symposium 2016, University of Pennsylvania 2016

UNIVERSITY SERVICE ACTIVITIES

Journal manuscript review

Reviewer of the following scientific journals: Environmental Engineering Science; Lithos; Clay Minerals; Applied Clay Science; Clays and Clay minerals; Canadian Mineralogist; International Journal of Environmental Analytical Chemistry 2011 – present

Proposal review 2017 – present

Review proposals for National Science Foundation – Division of Earth Sciences (EAR)

Administrative experience

Program coordinator of "EMU School 2011 – Layered mineral structures and their application in advanced technologies" Rome, Accademia Nazionale dei Lincei, Italy 2011

- managing and updating the website of the school
- taking care to the reception of students and professors who came from all over the world
- preparing the school materials

University service/leadership

Post-doctoral scholars representative, Department of Chemical and Earth Sciences, University of Modena and Reggio Emilia (Italy) 2011-2014

Educational outreach

Volunteer **guide** of "Acetaia" of Modena Municipality 2015

- short lesson on production of homemade Traditional Balsamic Vinegar of Modena;
- brief introduction on Sensory analysis of aged Traditional Balsamic Vinegar of Modena.

Science presenter for "Consorteria dell'Aceto Balsamico Tradizionale" 2014-2015

- seminar on crystallization of Traditional Balsamic Vinegar of Modena

Science presenter for Museum "Gemma 1786" of University of Modena and Reggio Emilia 2014

- Demonstration/discussion on "Phyllosilicates and their common uses in everyday life" and "Symmetries in minerals, nature, and art" for students from 6 to 18 years old.

Scientist coordinator for University of Modena and Reggio Emilia and Fiorano Modenese Municipality 2012-2013

- set-up of a mineral exhibition room of Ca' Tassi, Natural Reserve of Nirano Mud Volcanoes;
- design and creation of posters, a guide, and new arrangement of the mineral collection.

MEMBERSHIPS AND AWARDS

Membership

"Consorteria dell'Aceto Balsamico Tradizionale di Modena" 2011

"Mineralogical Society of America (MSA)" 2016

Awards

Registration grant to attend IMA2010 – The 20th General Meeting of the International Mineralogical Association 2010

International travel grant, University of Modena and Reggio Emilia 2013

SKILLS

Language

Italian Mother tongue

English full professional proficiency

English Qualifications

Trinity College "Grade 6: Spoken English for Speakers of Other Languages" Certificate 2000

Cambridge University ESOL Examinations - PET level Certificate 2008

Cambridge University ESOL Examinations - FCE level Certificate 2010

Computer

New **European Computer Certification** (New ECDL Full Standard): Computer Essential; Online Essential; Word Processing; Spreadsheets; IT Security (Specialized Level); Presentation; Online Collaboration. 2014

Full proficient with **XRD and SEM software suites** for data collection and phase identification; "CrystalMaker", a software for modelling crystal structures from X-ray diffraction data

Other

Tester of Traditional Balsamic Vinegar of Modena at "Consorteria dell'Aceto Balsamico Tradizionale di Modena" 2014

Charismatic and confident **public speaker**

Washington DC, 02 August 2017 Chiara Elmi