

Curriculum vitae of Francesco Di Benedetto

Personal Information

Current Position

Full Professor of Applied Mineralogy at the Department of Physics and Earth Sciences, University of Ferrara (Italy) – SSD GEO/09 (from 01/02/2022)

Previous positions

2021-2022 Associate Professor of Mineralogy at the Department of Earth Sciences, University of Ferrara (Italy) – SSD GEO/06
2017-2021 Associate Professor of Mineralogy at the Department of Earth Sciences, University of Florence (Italy) – SSD GEO/06
2014-2017 Tenure-track researcher in Mineralogy at the Dept. of Earth Sciences, University of Florence (Italy) – SSD GEO/06
2012-2014 Contract researcher in Mineralogy at the Dept. of Earth Sciences, University of Florence (Italy) – SSD GEO/06
2007-2012 Contract researcher in Environmental Mineralogy at the Dept. of Chemistry, University of Florence (Italy) – SSD GEO/09

Education

28/6/1999 Master "laurea" degree in Chemistry at the University of Florence (Italy)
19/12/2003 PhD degree in Earth Sciences at the University of Florence (Italy)

Language

Italian: Native; English: Fluent; French: Scholar; German: scholar, read

Memberships

SIMP (Italian Society of Mineralogy and Petrology), GIRSE (Italian Group of Electron Spin Resonance), SGI (Italian Geological Society)

Scientific and research skills and competences

Crystal chemistry of minerals and synthetic materials. Conventional physical methods in mineralogy and solid state sciences (XRPD, electron microscopy, EDS/WDS microanalysis). Advanced spectroscopic methods as: EPR, XAS (@ ESRF, Grenoble), Mössbauer (@ Univ. Salzburg), SQUID magnetometry. Health effects of dispersion in air of solid pollutants (crystalline silica, asbestos, urban dusts). Environmental effects in As-contaminated lands. Synthesis and characterisation of quaternary sulfides for the realisation of new nanostructured devices for solar energy conversion. Study of the technological answer to the limited availability of the georesources.

Teaching Experiences

Since 2010 entrusted of teaching courses in Mineralogy, Environmental Mineralogy, and Earth Resources (Master In Earth Sciences). Since 2021, entrusted of a course of Geomedicine and Toxic Particulates (master), and of Earth Resources and Anthropocene (Bachelor).

Tutor, or co-tutor of >30 Thesis projects in Earth Sciences, Chemistry, Cultural Heritage and Biology. Co-tutor of two Phd Students in Chemistry and Tutor of a PhD student in Earth Sciences. Since 2014, entrusted of several short courses for the Pegasus PhD at the Universities of Florence, Pisa and Siena (Italy) and for the IUSS EMAS PhD at the University of Ferrara. Member of the Panel for the final examination of the PhD in Earth Sciences, XXVI, XXVII and XXXIV cycles.

Lecturer at the National Schools of ESR, (Urbino 2003 and Florence 2009), of Mineralogy (Bressanone, 2018), of Society of Chemistry CHESS (Florence, 2017, 2019, Milan 2022).

National and International recognition

2002 Marie Curie Fellow award at the Training Site in Advanced Microanalysis of Earth Materials (Department of Earth Sciences, University of Manchester - UK)

2002-present Invited speaker at : First Russian-Italian Joint Workshop", Mosca (Russia), 2002; GHMFL User Meeting, CNRS, Grenoble, (France) 2007; Materials Sciences and Physics Department at Salzburg (Austria), 2008; workshop "Rischio Amianto: Esperienze a Confronto", Pisa, Italy, 2010; National NIS meeting "La Silice Libera Cristallina: fra dibattito scientifico e buone prassi", Roma, Italy, 2014;

2006 Mentioned at the Premio Ugo Panichi, by SIMP

2007-2010 Executive Board member of the GIRSE.

2007-present PI or co-proposer of more than 34 experiments at synchrotron light sources (XAS, PXRD, XRF, SXRD, FEXRAV), some of them under non-ambient conditions, as in situ and/or operando modes.

2008- present Member of the Scientific or Organizing Committee of several scientific meetings (IX National GIRSE meeting, Giovinazzo, 2008; V National GIRSE

		school, Firenze, 2009; X National GIRSE meeting, Rimini, 2010; workshop "Giornata di studi su Silice Libera Cristallina (SLC): esperienze condivise tra ricerca applicata e prevenzione", Firenze, 2011; National SIMP-AIV-SoGel-SGI joint meeting, Florence, 2015; International ECMS 2015 meeting, Rome, 2015; workshop "Silice e Amianto: attualità delle conoscenze scientifiche e del territorio", Firenze, 2016; International School "Diagnostic and survey of architectonical and archaeological heritage", Sheikh Zayed City, Cairo (Egypt), 2018; workshop "Amianto: un fantasma del passato o una storia infinita", 18 June, Firenze, 2018;
	2008	Member of the panel of the Ulderico Segre Prize
	2009	entrusted by Canada Council for the Arts as Reviewer for a Killam Research Fellowship in Mineralogy
	2010-2014	Vice-Chair of the Subcommission for Mineral Spectroscopy dell'International Mineralogical Association (IMA). Then, member until present days.
	2012	Advisor for the activation of an Helmholtz Research School (PhD training programme) at: Helmholtz-Zentrum Berlin für Materialien und Energie (HZB), Brandenburgische Technische Universität Cottbus (BTU), Freie Universität Berlin (FUB), Humboldt Universität Berlin (HUB), Technische Universität Berlin (TUB).
	2012	Session Co-Chair of a session at: ICTMC 18 – International Conference on Ternary and Multinary Compounds, Salzburg (Austria), 2012; EUROMAT 2013, Sevilla (Spain) 2013; MSE 2014 Darmstadt (Germany), 2014; National SIMP-AIV-SoGel-SGI joint meeting, Florence, 2015; MSE 2016 Darmstadt (Germany), 2016; SGI SIMP 2018 joint meeting, Catania, 2018; MSE 2020 Darmstadt (Germany), 2020; Goldschmidt Conference 2020, Honolulu, 2020; Goldschmidt Conference 2021, Lyon, 2021, MSE 2022 Darmstadt (Germany), 2022
	2014	Co-Author of the "Report on the activity of the GILDA-CRG beamline, 2009-2013".
	2014-2016	Guest Editor of the Special Issue "Novel Thin Film Materials for Photovoltaic Applications" published on Coatings
	2014-present	Attended the activities of the NIS (Network Italiano Silice).
	2014-2016	Co-author of the Nuove Linee Guida NIS sul rischio Silice.
	2015-2016	Delegate in the operative group of the DST during VQR 2011-2014.
	2015-2019	Officer, entrusted by CNR President, of the panel for the attribution of beamtime at the beamline LISA c/o ESRF (Grenoble, France).
	2016	Guest Editor of the volume "The 8th European Conference on Mineralogy and Spescetroscopy", published on European Journal of Mineralogy
	2017-2019	Representative of the Geochemistry, Earth Resources, Mineralogy, Petrology and Volcanology Section of the DST, and member of the Departmental board.
	2017	Member of the group at the DST-UniFI for the design of the Progetto d'Eccellenza, awarded by MIUR, 2018-2022
	2020	Key note speaker at the Goldschmidt conference, Honolulu (US), 21-26 June, 2020
	2021-present	Member of the scientific board of the Ce.M.E. - Centro di Microscopie Elettroniche "Laura Bonzi" (CNR)
	2022	Key note speaker at the IMA meeting, Lyon (France), 18-22 July, 2022
	2023-present	Member of the Commissione Paritetica Docenti Studenti
	2023-present	Member of the Commissione per l'Assicurazione della Qualità della Ricerca e della Terza missione del Dipartimento
	2023-present	Delegate in the Scientific Council of Teknehub (Laboratory of the Ferrara Tecnopolo)
Publications Scores and metrics		FDB authored 106 full-length articles published in International Peer Reviewed Journals of the ISI circuit. He published more than 150 abstracts and extended abstracts in conference proceedings. At July 2023, FDB earned 26 h-factor, 1962 citations (source: Scopus); FDB also authored 12 chapters in book and proceedings of national and international relevance,

Most recent 15 publications

and he is reviewer for more than 35 international peer reviewed ISI journals.

- ✓ Sangines, F., Millacci, G., Giaccherini, A., Buccianti A., Fusi L., Di Benedetto, F., Pardi, L. (2023) Long term lithium availability and electric mobility: What can we learn from resource assessment? *Journal of Geochemical Exploration*, 249, 107212
- ✓ Bardelli, F., Giacobbe, C., Ballirano, P., Borelli V., Di Benedetto F., Montegrossi, G., Bellis, D., Pacella, A. (2023) Closing the knowledge gap on the composition of the asbestos bodies *Environmental Geochemistry and Health*. doi.org/10.1007/s10653-023-01557-0
- ✓ Vettori, S., Romoli, D., Salvatici, T., (...), Agostini, B., Di Benedetto, F. (2023) Non-Invasive SWIR Monitoring of White Marble Surface of the Cathedral of Santa Maria del Fiore (Florence, Italy) *Sustainability* 15(2),1421
- ✓ Spagnoli, E.; Fabbri, B.; Gaiardo, A; Valt, M; Ardit, M; Krik, S.; Cruciani, G; Della Ciana, M; Vanzetti, L; Vola, G.; Di Benedetto, F.; Migliori, A.; Malagù, C., Guidi, V. (2022) Design of a metal-oxide solid solution for selective detection of ethanol with marginal influence by humidity, *Sensors and Actuators B: Chemical* 370,132426
- ✓ Berretti, E., Pagliaro, M.V., Giaccherini A., Montegrossi G. Di Benedetto F, Lepore G.O., D'Acapito F., Vizza, F., Lavacchi, A. (2022) Experimental evidence of palladium dissolution in anodes for alkaline direct ethanol and formate fuel cells. *Electrochimica Acta*, 418,140351
- ✓ Venturi, S., Crognale, S., Di Benedetto, F., (...), Vaselli, O., Fazi, S. (2022) Interplay between abiotic and microbial biofilm-mediated processes for travertine formation: Insights from a thermal spring (Piscine Carletti, Viterbo, Italy). *Geobiology*, Article in Press
- ✓ Romanelli, M., Buccianti, A., Di Benedetto, F., Bellucci, L., Cemicky, S. (2022) An innovative electron paramagnetic resonance and statistical analysis approach to investigate the geographical origin of multi-layered samples from a Renaissance painting. *Microchemical Journal*, 177,107219
- ✓ Vettori, S., Verrucchi, M., Di Benedetto, F., (...), Rimondi, V., Moretti, S. (2021) Hyperspectral sensor: A handy tool to evaluate the efficacy of cleaning procedures *Journal of Cultural Heritage* 49, 79-84
- ✓ Di Benedetto, F., Giaccherini, A., Romanelli, M., (...), Gottardo, O., Capacci, F. (2021) A study of radicals in industrial raw cristobalite powders. *Physics and Chemistry of Minerals*, 48(2),9
- ✓ Santo, A.P., Di Benedetto, F., Garzonio, C.A., (...), Salvatici, T., Coppola, M. (2021) Stone architectural decoration in burji era: The northern mausoleum in the khanqah of al-nasir faraj ibn barquq (cairo). *Contribution to the knowledge and conservation assessment Heritage* 4(1), pp. 507-523
- ✓ Bardelli, F., Giuli, G., Di Benedetto, F., (...), Barone, G., Mazzoleni, P. (2020) Spectroscopic study of volcanic ashes. *Journal of Hazardous Materials*, 400,123213
- ✓ Aquino, A., Lezzerini, M., Giaccherini, A., Montegrossi, G., Di Benedetto, F. (2020) Thermochemical stability of delafossite and other relevant ternary phases in the Cu-Fe-S-O-H system, *Applied Geochemistry*, 123,104795
- ✓ Coppola, M., Di Benedetto, F., Garzonio, C.A., Pecchioni, E., Santo, A.P. (2020) Groundwater damages on the historic buildings of Cairo: The case of the medieval walls of Mokattam limestone. *IOP Conference Series: Materials Science and Engineering*, 949(1),012004
- ✓ Di Benedetto, F., Zoleo, A., Romanelli, M. (2020) Characterisation of the Fe(III):H+ Defect Centre in Natural Amethyst. *Applied Magnetic Resonance*. 51(11), pp. 1607-1619
- ✓ Giaccherini, A., Griesi, A., Montegrossi, G., (...), Caneschi, A., Di Benedetto, F. (2020) A new solvothermal approach to obtain nanoparticles in the Cu₃SnS₄-Cu₂FeSnS₄ join. *Journal of Geosciences (Czech Republic)* 65(1), pp. 3-14