DIPARTIMENTO
DI SCIENZE DELLA TERRA

SAPIENZA
UNIVERSITÀ DI ROMA

CURRICULUM VITAE ET STUDIORUM

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Education and career

- *17 December 1987*: MSc in Geological Sciences, University "La Sapienza" Rome, 110/110 cum laude
- *1989 – 1992*: PhD in Earth Sciences, Department of Earth Sciences, University "La Sapienza" Rome
- *September 1990 – October 1991*: visiting scientist, Department of Earth Sciences, Rijksuniversiteit Utrecht (Netherlands)
- *November 1991*: visiting scientist, Panasqueira and Vale das Gatas mines (Portugal)
- *1994 – 1996*: post Doc, Department of Earth Sciences, University "La Sapienza" Rome
- *September – October 1995*: visiting scientist, Department of Earth Sciences, Coimbra University (Portugal)
- *November 1995*: visiting scientist, University El-Jadida (Morocco)
- *14 June 1999 – 31 October 2000*: CNR researcher by contract (art. 23), Institute of Geosciences and Georesources
- *October – November 2000 and 2001*: visiting scientist at Gonçalo, Viseu and Guarda region (Portugal) and Anti Atlas region (Morocco)
- *1 November 2000 – 02 September 2019*: researcher, Department of Earth Sciences, Sapienza University, Rome
- *03 September 2019 – present*: Associate Professor, Department of Earth Sciences, Sapienza University, Rome

SCIENTIFIC ACTIVITY

Research

The main topics are:

- Mechanisms of the immobilization of heavy metals in water and soil by phosphate amendments
- Carbon dioxide sequestering through mineral carbonation in aqueous solution
- Mineralogical, petrographic and geochemical characterization of materials used in Cultural Heritage
- Modelling of sulphur isotope fractionation in sedimentary pyrite
- Ore geology of polymetallic sulphide ores and pegmatites

Keywords: Heavy metals, Hydroxyapatite, Phosphate rock, Immobilization, Mine waste soils, CO_2 long-term sequestration, Hydrated Mg-carbonates, Cultural Heritage, Archaeological

ceramics, Glazed pottery, Sulphur isotope fractionation, Sedimentary pyrite, Polymetallic sulphide ores, Pegmatites,.

Research Projects

Collaborator

- Studi sulla genesi di giacimenti di varia tipologia in Portogallo e Spagna, per le applicazioni alla prospezione mineraria (CNR - JNICT) 1995-2000
- Modelli geochimici interpretativi sulla genesi delle mineralizzazioni polimetalliche, Progetto Strategico Valorizzazione delle materie prime minerali 2002
- Magmatismo alcalino-thoeliitico cretacico-eocenico del Brasile e dell'Uruiguay ("La Sapienza" University) 2002
- Discriminanti genetici delle mineralizzazioni polimetalliche ("La Sapienza" University) 2003
- Indagine multidisciplinare su natura, origine ed età di materiali archeologici ("La Sapienza" University) 2004
- Carbonatazione della CO_2 da soluzioni acquose di cloruro di magnesio (ENEL Produzione S.p.A. – Dipartimento di Scienze della Terra, "La Sapienza" University) 2005
- Contributo alla riduzione della CO_2 nell'atmosfera con intervento alla sorgente di emissione (PRIN 2006, 2006045331_001)
- Interazione fra minerali e biosfera: conseguenze per l'ambiente e la salute umana (PRIN 2010-2011, 2010MKHT9B_007)
- Sintesi di carbonati "heavy metal-bearing" cristallini e amorfi mediante reazione tra CO_2 e soluzioni acquose multi-elementari: efficienza del processo di smaltimento di metalli tossici e sequestro della CO_2 ("La Sapienza" University) 2014

Principal Investigator

- Studio sugli effetti degli ammendanti fosfatici sull'immobilizzazione e sulla fitodisponibilità di metalli pesanti in suoli inquinati ("La Sapienza" University) 2006
- Studio sugli effetti degli ammendanti fosfatici sull'immobilizzazione di metalli pesanti in acque e suoli inquinati ("La Sapienza" University) 2007
- Studio sull'immobilizzazione di metalli pesanti mediante fosfati in acque e suoli inquinati: prove sperimentali in colonne ed in batch ("La Sapienza" University) 2008
- Mineral trapping della CO_2 via carbonatazione: monitoraggio del processo in un impianto pilota con gestione e controllo informatizzati ("La Sapienza" University) 2009
- Efficienza del processo di carbonatazione della CO_2 in "waste" saline multi elementari ("La Sapienza" University) 2011
- È possibile definire gli aspetti tecnologici di produzione e la provenienza delle materie prime delle ceramiche archeologiche con l'applicazione di tecniche analitiche non- e micro-invasive? ("La Sapienza" University) 2013
- Il contributo degli isotopi di Pb, Cu e Sn nello studio delle ceramiche archeologiche: tecnologie di produzione e provenienze delle materie prime ("La Sapienza" University) 2015

TEACHING

- Industrial rocks
- Mineral deposits and geodynamics settings
- Ore deposits and metallogenic provinces

- Processing and valorization of geomaterials
- Corrosion of metal archaeological artefacts
- Ore mineralogy
- Supervisor of three PhD theses

REVIEWING AND EVALUATION

Scientific supervisor

- Post-doc project 2015-2016 "Aspetti tecnologici di produzione e provenienza delle materie prime di ceramiche del Levante mediante l'applicazione di tecniche analitiche non- e micro-invasive", Dipartimento di Scienze della Terra, Sapienza Università di Roma.
- Post-doc project 2019 – 2020 "La ceramica di Gerico (Palestina): tecnologie di produzione", Dipartimento di Scienze della Terra, Sapienza Università di Roma.

Spervisor

- Three PhD Theses

Undergraduate evaluation

- Tutor or co-tutor of 26 degree theses
- Supervisor of undergraduate training

Grant evaluation

- Member of the 'Earth and Environmental Science' panel, Lehman College, City University of New York (CUNY), USA (2009-2010)

Review

Reviewer for many scientific journals: Journal of Hazardous Materials, Chemical Engineering Journal, Science of the Total Environment, Journal of Colloid and Interface Science, Environment International, Ecotoxicology and Environmental Safety, Materials Chemistry and Physics, Desalination, Journal of Integrative Agriculture, Journal of Environmental Management, Environmental Pollution, Environmental Engineering Science.

SELECTED HIGH-IMPACT PAPERS

- **MIGNARDI S.**, ARCHILLETTI L., MEDEGHINI L., DE VITO C. (2020) - Valorization of eggshell biowaste for sustainable environmental remediation. *Sci. Rep.* 10:2436.

- MEDEGHINI, L., **MIGNARDI, S.**, DE VITO, C. (2020) - When the time stops: The "Grotta dei Cocci" (Terni, Italy). *Bol. Soc. Esp. Ceram. V.*, article in press.

- MEDEGHINI, L., **MIGNARDI, S.**, DI FUSCO, G., BOTTICELLI, M., COLETTI, F., DE VITO, C. (2020) - How microanalysis can be discriminant on Black Pompeian Wares. *Crystals*, 10(10), 879.

- MEDEGHINI L., FAYEK M., **MIGNARDI S.**, COLETTI F., CONTINO A., DE VITO C. (2020) - A provenance study of Roman lead-glazed ceramics using lead isotopes and secondary ion mass spectrometry (SIMS). *Microchem. J.*, 154, 104519.

- BOTTICELLI M., **MIGNARDI S.**, DE VITO C., LIAO Y., MONTANARI D., SHAKARNA M., NIGRO N., MEDEGHINI L. (2020) - Variability in pottery production at Khalet al-Jam'a necropolis, Bethlehem (West Bank): From the Early-Middle Bronze to the Iron Age. *Ceram. Int.* 46, 16405-16415.

- MEDEGHINI L., FERRINI V., DI NANNI F., D'UVA F., **MIGNARDI S.**, DE VITO, C. (2019) - Ceramic pipes of the Roman aqueduct from Raiano village (L'Aquila, Italy): A technological study. *Constr. Build. Mater.* 218, 618-627.

- MEDEGHINI L., SALA M., DE VITO C., **MIGNARDI S.** (2019) - A forgotten centre of ceramic production in Southern Levant: Preliminary analytical study of the Early Bronze Age pottery from Tell el-Far'ah North (West Bank). *Ceram. Int.* 45, 11457-11467.

- NONNI S., MARZAIOLI F., **MIGNARDI S.**, PASSARIELLO I., CAPANO M., TERRASI F. (2018) - Radiocarbon dating of mortars with a pozzolana aggregate using the cryo2sonic protocol to isolate the binder. *Radiocarbon* 60, 617-637.

- DE VITO C., MEDEGHINI L., GARRUTO S., COLETTI F., DE LUCA I., **MIGNARDI S.** (2018) - Medieval glazed ceramic from Caesar's Forum (Rome, Italy): Production technology. *Ceram. Int.* 44, 5055-5062.

- MEDEGHINI L. DE VITO C., COLETTI F., GOVI A., FABRIZI L., DI FAZIO M., **MIGNARDI S.** (2018) - Glazed roman ceramic: A multi-analytical approach. *Per. Mineral.* 87, 229-244.

- DE ANGELIS G., MEDEGHINI L., CONTE A.M., **MIGNARDI S.** (2017) - Recycling of eggshell waste into low-cost adsorbent for Ni removal from wastewater. *J. Clean. Prod.* 164, 1497-1506.

- DE VITO C., MEDEGHINI L., **MIGNARDI S.**, COLETTI F., CONTINO A. (2017) - Roman glazed inkwells from the "Nuovo Mercato di Testaccio" (Rome, Italy): Production technology. *J. Eur. Ceram. Soc.* **37**, 1779-1788.

- MEDEGHINI L., **MIGNARDI S.**, DE VITO C., MACRO N., D'ANDREA M., RICHARD S. (2016) - New insights on Early Bronze Age IV pottery production and consumption in the southern Levant: The case of Khirbat Iskandar, Jordan. *Ceram. Int.* **42**, 18991-19005.

- MEDEGHINI L., FABRIZI L., DE VITO C., **MIGNARDI S.**, NIGRO L., GALLO E., FIACCAVENTO C. (2016) - The ceramic of the "Palace of the Copper Axes" (Khirbet al-Batrawy, Jordan): A palatial special production. *Ceram. Int.* **42**, 5952-5962.
  Times cited: 3

- MEDEGHINI L., **MIGNARDI S.**, DE VITO C., CONTE A.M. (2016) - Evaluation of a FTIR data pretreatment method for Principal Component Analysis applied to archaeological ceramics. *Microchem. J.* **125**, 224-229.
  Times cited: 7

- DE VITO C., MEDEGHINI L., **MIGNARDI S.**, BALLIRANO P., PEYRONEL L. (2015) - Technological fingerprints of the Early Bronze Age clay *figurines* from Tell Mardikh-Ebla (Syria). *J. Eur. Ceram. Soc.* **35**, 3743-3754.
  Times cited: 4

- DE VITO C., MEDEGHINI L., **MIGNARDI S.**, ORLANDI D., NIGRO L., SPAGNOLI F., LOTTICI P.P., BERSANI D. (2014) - Technological fingerprints of Black-Gloss Ware from Motya (Western Sicily, Italy). *Appl. Clay Sci.* **88-89**, 202-213.
  Times cited: 9

- MEDEGHINI L., LOTTICI P.P., DE VITO C., **MIGNARDI S.**, BERSANI D. (2014) - Micro-Raman spectroscopy and ancient ceramics: Applications and problems. *J. Raman Spectrosc.* **45**, 1244-1250.
  Times cited: 14

- BALLIRANO P., DE VITO C., MEDEGHINI L., **MIGNARDI S.**, FERRINI V., MATTHIAE P., BERSANI D., LOTTICI P.P. (2014) - A combined use of optical microscopy, X-ray powder diffraction and micro-Raman spectroscopy for the characterization of ancient ceramic from Ebla (Syria). *Ceram. Int.* **40**, 16409-16419.
  Times cited: 13

- **MIGNARDI S.**, CORAMI A., FERRINI V. (2013) - Immobilization of Co and Ni in mining-impacted soils using phosphate amendments. *Water, Air and Soil Pollution* **224**, 1-10.
  Times cited: 12

- BALLIRANO P., DE VITO C., **MIGNARDI S.**, FERRINI V. (2013) - Phase transitions in the Mg-CO_2-H_2O system and the thermal decomposition of dypingite, $Mg_5(CO_3)_4(OH)_2 \cdot 5H_2O$: Implications for geo-sequestration of carbon dioxide. *Chem. Geol.* **340**, 59-67.
  Times cited: 18

- MEDEGHINI L., **MIGNARDI S.**, DE VITO C., BERSANI D., LOTTICI P.P., TURETTA M., SALA M., NIGRO L. (2013) - Is Khirbet Kerak Ware from Khirbet al-Batrawy (Jordan) local or imported pottery? *Anal. Methods* **5**, 6622-6630.
  Times cited: 9

- NONNI S., MARZAIOLI F., SECCO M., PASSARIELLO I., CAPANO M., LUBRITTO C., **MIGNARDI S.**, TONGHINI C., TERRASI F. (2013) - ^{14}C mortar dating: The case of the medieval Shayzar citadel, Syria. *Radiocarbon* **55**, 514-525.
  Times cited: 4

- MEDEGHINI L., **MIGNARDI S.**, DE VITO C., BERSANI D., LOTTICI P.P., TURETTA M., COSTANTINI J., BACCHINI E., SALA M., NIGRO L. (2013) - The key role of micro-Raman spectroscopy in the study of ancient pottery: the case of pre-classical Jordanian ceramics from the archaeological site of Khirbet al-Batrawy. *Eur. J. Mineral.* **25**, 881-893.
  Times cited: 14

- FERRINI V., DE VITO C., **MIGNARDI S.**, FUCINESE D.M. (2012) - Archaeological carved slabs of the Langobard art in churches of Peligna Valley and Spoleto (Italy): provenance of the stones. *J. Archaeological Science* **39**, 3505-3515.
  Times cited: 1

- **MIGNARDI S.**, CORAMI A., FERRINI V. (2012) - Evaluation of the effectiveness of phosphate treatment for the remediation of mine waste soils contaminated with Cd, Cu, Pb, and Zn. *Chemosphere* **86**, 354-360.
  Times cited: 66

- DE VITO C., FERRINI V., **MIGNARDI S.**, CAGNETTI M., LECCESE F. (2012) - Progress in carbon dioxide sequestration via carbonation of aqueous saline wastes. *Per. Mineral.* **81**, 333-344.
  Times cited: 9

- **MIGNARDI S.**, DE VITO C., FERRINI V., MARTIN R.F. (2011) - The efficiency of CO_2 sequestration via carbonate mineralization with simulated wastewaters of high salinity. *J. Hazard. Mater.* 191, 49-55.
  Times cited: 29

- BALLIRANO P., DE VITO C., FERRINI V., **MIGNARDI S.** (2010) - The thermal behaviour and structural stability of nesquehonite, $MgCO_3 \cdot 3H_2O$, evaluated by in situ laboratory parallel-beam X-ray powder diffraction: New constraints on CO_2 sequestration within minerals. *J. Hazard. Mater.* **178**, 522-528.
  Times cited: 42

- FERRINI V., FAYEK M., DE VITO C., **MIGNARDI S.**, PIGNATTI J. (2010) - Extreme sulphur isotope fractionation in the deep Cretaceous biosphere. *J. Geol. Soc.* **167**, 1009-1018.
  Times cited: 10

- FERRINI V., DE VITO C., **MIGNARDI S.** (2009) - Synthesis of nesquehonite by reaction of gaseous CO_2 with Mg chloride solution: Its potential role in the sequestration of carbon dioxide. *J. Hazard. Mater.* **168**, 832-837.
  Times cited: 83

- CORAMI A., **MIGNARDI S.**, FERRINI V. (2008) - Cadmium removal from single- and multi-metal (Cd + Pb + Zn + Cu) solutions by sorption on hydroxyapatite. *J. Colloid Interface Sci.* **317**, 402-408.
  Times cited: 165

- CORAMI A., D'ACAPITO F., **MIGNARDI S.**, FERRINI V. (2008) - Removal of Cu from aqueous solutions by synthetic hydroxyapatite: EXAFS examination. *Mater. Sci. Eng. B* **149**, 209-213.
  Times cited: 26

- CORAMI A., **MIGNARDI S.**, FERRINI V. (2008) - Removal of lead, copper, zinc and cadmium from water using phosphate rock. *Acta Geol. Sin.- Engl.* **82**, 1223-1228.
  Times cited: 11

- CORAMI A., **MIGNARDI S.**, FERRINI V. (2007) - Copper and zinc decontamination from single- and binary-metal solutions using hydroxyapatite. *J. Hazard. Mater.* **146**, 164-170.
  Times cited: 120

- DE VITO C., FERRINI V., **MIGNARDI S.**, PICCARDI L., TUTERI R. (2004) - Mineralogical-petrographic and geochemical study to identify the provenance of limestone from two archaeological sites in the Sulmona Area (L'Aquila, Italy). *J. Archaeological Science* **31**, 1383-1394.
  Times cited: 6

SELECTED CHAPTERS IN BOOKS

- DE VITO C., **MIGNARDI S.**, FERRINI V., MARTIN R.F. (2011) - Reject Brines from Desalination as Possible Sources for Environmental Technologies, Expanding Issues in Desalination, Robert Y. Ning (Ed.), ISBN: 978-953-307-624-9, InTech, pp. 85-102.

- **MIGNARDI S.**, CORAMI A., FERRINI V. (2011) – Immobilization of Heavy Metals in Soil by Phosphate Treatment: A Review. Metal Contamination: Sources, Detection and Environmental Impact. NOVA Publishers, pp. 43-79.

LINKS

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