


PERSONAL INFORMATION

Marco Giamello



 8, Via Laterina, I-53100 Siena (Italy)

 (+39) 3204374436

 marco.giamello@unisi.it

Date of birth 01/08/1959 | Nationality Italian

POSITION

Researcher (Aggregate Professor) in the University of Siena (Italy), Department of Earth, Environment and Physical Sciences, Disciplinary sector GEO/09 (Mining Resources and Mineralogical - Petrographic Applications for the Environment and Cultural Heritage)

WORK EXPERIENCE

2001–Present

Researcher (since 2005 Aggregate Professor)

University of Siena, Department of Earth, Environment and Physical Sciences

8, Via Laterino, I-53100 Siena (Italy)

<https://www.dsfta.unisi.it/en>

- **Scientific Responsible** of the Research Unit "Conservation of Cultural Heritage and Archaeometry" (since 2011)

- **Scientific Responsible** of the Laboratories: Thin and ultrathin Sections, Optical Microscopy, X-ray diffraction, Determination of physical properties, 3D digital microscopy (since 2011)

2017–2019

Leader, scientific and operational contact person

Tuscany Region

10 Piazza Duomo, Florence (Italy)

Research collaboration agreement between the Tuscany Region (Department for Infrastructure and Mobility, Management of Mobility, Infrastructure and Local Public Transport Policies) and the Universities of Siena, Florence and Pisa, and the Institute for the Conservation and Promotion of Cultural Heritage of the Italian National Research Council (CNR).

- Target of the research was the characterization of the natural stones used in the Tuscan historical centres, including the World Heritage Sites of Florence, Siena and Pisa

2017–2018

- Characterization of the pigments, plasters and finishings of the wall painting Maestà painted by Simone Martini in the city hall of Siena - Municipality of Siena

- Mineralogical-petrographic analyses of mortars and ceramics of the archaeological sites of Vetricella, Scarlino (Grosseto) and, only for mortars, Volubilis, Morocco

- Mineralogical-petrographic analyses of the marbles, pigments and finishings of the Concistoro Portal, in the city hall of Siena

- Characterization of the mortars, plasters and finishings of the masonries of the inner street of the ancient Hospital named Santa Maria della Scala in Siena

2016–2017

- Characterization of the ornamental stones, state of conservation, mortars and mapping of the interventions on the three scenes in the churchyard of the Siena cathedral main façade. OPA, Opera

della Metropolitana di Siena.

- Characterization of the marbles, state of conservation, colors and mapping of the interventions on the two funeral monuments of the popes Pio II and Pio III, inside the Siena cathedral. OPA, Opera della Metropolitana di Siena.

- Characterization of the pigments, plasters and finishings of the wall paintings painted by Ambrogio Lorenzetti in Monte Siepi and in San Francesco Basilica, Siena - Municipality of Siena

2016

- Mineralogical-petrographic analyses of traces of ancient treatments on the stone surfaces of the masonries of the lateral façades and claristorio of Cathedral of Pisa. Opera della Primaziale Pisana

- Study of the earth masonries in the medieval grange of Cuna – Siena (Italy)

- Study of lithic raw materials in central Italy at the dawn of metal working societies: the case of La Pietra and other radiolarite quarry-workshops in Tuscany

2015

- Mineralogical-petrographic analyses of finishings and casting cores present in the South Door of the Florentine Baptistery – Opificio delle Pietre Dure, Florence

- Study of ancient treatments present on the stone surfaces of the masonries of the apse of the Cathedral of Pisa. Opera della Primaziale Pisana.

- Mineralogical and petrographic investigations on stone materials and their conservation status, with regard to the restoration of the facade of the Palace of Papesse, Siena

- Zooarchaeology, Prehistoric Art and digital imaging: quantitative analysis of bone modifications using 3D microscopy

- Monitoring thermohygrometric of *Bottino Maestro di Fonte Gaia*, sector *Fonte Giusta – Piazza del Campo*. Siena

- Study of the mural paintings of *Fonte di Follonica*, Siena

- Identification and study of the remains of the *Giustizia* Gate in the city wall of Siena

2014

- Mineralogical-petrographic analyses of finishings, mortars, rock types and decorations in glass tesserae of the pulpit of Nicola Pisano, in the Cathedral of Siena – Opificio delle Pietre Dure, Florence

- Surveys to supplement the Plan of the color of Siena - Municipality of Siena

- Characterization of ancient mortars from the S. Niccolò archaeological complex in Montieri (Grosseto - Italy)

- Study of color variations on Portoro exposed outdoors

2013

- Mineralogical-petrographic analysis of mortars, plasters and finishing of the Grange of Cuna, Monteroni d'Arbia (Siena)

- Study of casting cores of twelve large bronze masterpieces of the Florentine Renaissance and Mannerism (artworks by Ghiberti, Donatello, Verrocchio, Rustici, and Danti).

- Mineralogical-petrographic study of ochres found in the Gravettian burials at Grotta Paglicci (Rignano Garganico - Foggia - Southern Italy).

- Mineralogical-petrographic analysis of mortars and finishings of Palace and Tower Campatelli in San Gimignano (Siena)

2010–2013

Scientific responsible of the Siena University Research Unit

Research project TEMART - Advanced techniques for the material knowledge and the conservation of the historical-artistic patrimony, European Fund for Regional Development (POR CreO FESR 2007-2013), Leadership IFAC-CNR

Research activities of the Siena University :

- Characterization of natural and artificial stone materials, colors and other finishes, verifying the effectiveness of the restoration by means of laser in Coat of arms of the Silk, Istituto degli Innocenti in

Florence

- Analysis of the surfaces of the medieval scratched bricks of *Fonte Nuova*, Siena
- Study of a colorimetric repertoire of ceramics from the archaeological site of Tell Barri (Syria)
- Scientific studies on the Mausoleum of Theodoric in Ravenna
- Scientific studies on "Cherub with open arms", Istituto degli Innocenti in Florence
- Scientific investigations on three tanks sandstone preserved at the Hospital of Santa Maria Nuova in Florence, known as "tanks Leonardo"
- Study of a material found in the tip bronze flagpole used in the battle of Curtatone and Montanara, kept at the Tower of Castagna in Florence
- Petrographic study of souls melting and other "lands" discovered in five bronzes preserved in the Egyptian Museum in Florence
- Mineralogical and petrographic study of surface patinas and soul fusion of the bronze statue of the Chimera of Arezzo
- Dating of calcium oxalate films using the method of ^{14}C by AMS
- Study of the films in the Fonte Gaia by Jacopo della Quercia (Siena)
- Petrographic study of the patinas and stone materials, and assessment of the effects of laser cleaning techniques of a Roman sarcophagus preserved in the Church of San Giovanni in Lucca
- Mineralogical-petrographic analysis of samples from the "The Statue of Hope" by Edward Fantacchiotti (English Cemetery, Florence)

2011

- Mineralogical-petrographic study of the white marble of Campiglia Marittima (Livorno, Italy) and of marble artefacts from Populonia
- Mineralogical and petrographic study of masonry and wall paintings of the eastern sector of the presbytery of the Cathedral of San Cerbone, Massa Marittima (Grosseto)
- Study of the surface formations on the pulpit by Giovanni Pisano in the church of Sant'Andrea in Pistoia

2007–2011

Scientific responsible of the Siena University Research Unit

Research project STAR-T – Sciences and technologies for Tuscan Artistic Architectonic and Archaeological Heritage, cofunded by Regione Toscana

2010

- Identification of historical quarries of marble of Campiglia Marittima (Livorno)
- Mineralogical and petrographic analysis of samples taken from the tomb of Porrina in Collegiate Casole d'Elsa (SI)
- Mineralogical and petrographic analysis of mural paintings in the Old Sacristy of Santa Maria della Scala, Siena
- Petrographic study of casting cores used to craft florentine bronze masterpieces
- Study of surface finishes architectural fourteenth century brick found during the restoration of the Theatre Rinnovati in Siena

2009

- Study of the origin of ornamental stone artefacts of the acropolis of Populonia (Livorno)
- Analytical investigations of the surface layers of bronze statues of Rustici in the Baptistery in Florence
- Study of finishings in the marble Loggia of the Merchants of Siena
- Microstratigraphic analysis of the Portal of the Sala del Consiglio Generale of the Republic of Siena (Italy)
- Geological-petrographic features and use in stone cultural heritage of the Montagnola Senese marbles
- Petrographic characterization of stone materials, analysis of grouting, the colors and other surface traces Piccolomini altar in the Cathedral of Siena.

- Mineralogical-petrographic study of wall paintings in former Santa Marta convent in Siena (Italy)

2008

- Study of the finishings of the decoration brick of the claristorio of the collegiate church of San Gimignano (Siena)
- Petrographic characterization of the materials of the floor with emblem cubic perspective from "Lodges" Populonia
- Archaeometric characterization of castelnuovo dell'Abate calcareous alabasters (Siena)

2007

- Analysis of the surfaces of the bricks facades of the palaces of Siena to define the ancient treatments applied to the surface
- Analytical investigations of the surface layers of bronze statues of Danti in the Baptistery in Florence
- Study of the stone materials used in the Pulpit of Nicola Pisano in the Siena Cathedral
- Characterisation of the stones, and their state of conservation, of the medieval San Mamiliano di Simassi Church (SW Sardinia)
- Study of the traces of ancient treatments on the stone materials of the façades in the S. Antioco of Bisarcio Romanesque Basilica (NE Sardinia, Italy)
- Mineralogical and petrographic studies of the plaster façade of Palazzo Bargagli (Siena)

2006

- Review and digitization of the map of the materials used in the architecture of Siena and the map of the state of conservation
- Study of the marble surfaces of the Duomo of Siena, main front and side, and artwork in museum, in order to characterize the ancient treatments present
- Mineralogical and petrographic analysis of the plaster of the Monumental Complex of S. Anna in Camprena (Pienza)
- Mineralogical and petrographic analysis of mural paintings of the Old Sacristy in the Santa Maria della Scala, Siena
- Mineralogical and petrographic studies of the plaster façade of Loli Piccolomini (Siena)

2005

- Test on laser cleaning of stone by different laser pulse duration and wavelength
- Characterization of the surface formations present on Rondanini Pietà by Michelangelo
- Material characterization of a mosaic floor with emblem in opus sectile from the acropolis of Populonia (Livorno)

2004

- Study of the calcium oxalate films of the facade of the Palazzo Pubblico of Siena
- Petrographic study of the horizons of degradation of the monuments to the definition of minimum intervention
- Mineralogical-petrographic study and laser cleaning tests of marble surfaces of Porta della Mandorla, Florence
- Study of the microfabric and physical decay processes of the Montagnola Senese marbles (Siena, Italy)

2003

- Study of the films and "taròli" on Michelangelo's David (Florence)
- Identification and significance of ancient treatments on the stone surfaces of the Santa Maria della Scala facade (Siena, Italy)
- Test and optimisation of laser cleaning of stone surfaces
- Characterization of samples of stone before and after laser cutting
- Mapping of the building materials in the historical center of San Gimignano (Tuscany)

- 2000–2002 **Scientific responsible of the Siena University Research Unit**
Project PARNASO - Development of a new advanced system of investigation for the determination of consumption of the floor of historic buildings: the Cathedral of Siena. Funded by Syremont s.p.a.
Research activities:
- Characterization of the materials and state of conservation of the marble floor of the Duomo of Siena and use of an advanced information system for the study of the deterioration
 - Development of a new advanced system of investigation for the determination of consumption of the floor of historic buildings: the Cathedral of Siena.
 - Petrographic characterization of the white marble of Montagnola Senese
- 2000
Petrographic characterization of the Pliocene sandstone, types of degradation, employment in the historic center of Siena, identification of historical quarries and evaluating the potential mining of outcrops near Siena
- 1987–2000 **Graduate Technician**
University of Siena - Institute of Mineralogy and Petrography
- 1999
- Basic research and development of an optimized laser cleaning of stones
 - Application test of a new laser cleaning procedure to the mausoleum of Theodoric, Ravenna
 - Determination of damage thresholds to prevent side effects in laser cleaning of pliocene sandstone of Siena
 - Test for integration of laser with conventional techniques in marble restoration
 - Laboratory analyses on lithotypes of Siena architecture to apply Laser cleaning methodologies for stone facades and monuments
 - Determination of mineralogical-petrographic and petrogenetic features of the calcare cavernoso of the Montagnola Senese (Siena, Italy)
- 1996–1999
- Study of oxalates films and of the phenomena of sulfation present on the surfaces of stone monuments
 - Evaluation of the techniques of laser cleaning of stone materials
 - Mapping, Analysis and Documentation of Cultural Heritage through IT methods
- 1989–1998
Collaboration to the researches:
- Study of the alteration of stone materials of the monuments of southern Tuscany for a correct assessment of the conservation work
 - Study of the mechanisms of interaction between consolidating and stone materials, the fluosilicates
 - The stone materials used in architecture monuments of southern Tuscany: characteristics, degradation and surface formations
- Collaboration in the study of a large number of monuments, mostly in Siena, studied mainly in the context of conventions, in consultation with the Superintendence of Environmental and Architectural and Artistic and Historical Heritage of Siena and Grosseto; the results of these studies have been reported in scientific and technical reports delivered to the client.
- The monuments that have been studied are: in Siena, the Fonte Gaia by Jacopo della Quercia and its copy of nineteenth century, the Lodges of the Pope, the Lodges of the Merchandise, the Public Palace, the Chapel Square, the main portal of the cathedral, the façade of the Baptistery, the side door of the New Cathedral, the Santa Maria della Scala, the Palace of San Galgano, Palazzo Spannocchi, Palazzo Chigi Saracini, Palazzo Salimbeni, Palazzo Sansedoni, the Medici Fortress, the Palace Nastasi, Palace of the Magnifico, Palazzo Bianchi, Palazzo Piccolomini-Clementini, Palazzo Bellanti, the portal of the Government Palace, the Fountain of Pispini, the statue of the "Mangia", the painting

represents Guido Riccio in Siena; the Cute Hall in Pienza; the Rocca in Radicofani; the Hospital of Santa Fina in San Gimignano; the facade of the Cathedral of San Cerbone in Massa Marittima; frescoes of the cloister in Monte Oliveto Maggiore Abbey; frescoes of the Romanesque church in Colle Ciupi; the Palazzo della Gran Guardia in Verona; the Church of the Holy Spirit in Melilli (Syracuse); the Church of San Pietro in Ortigia (Syracuse)

1983–1995

Collaboration to the researches:

- The hydrothermal fluids associated with sulphide mineralization in southern Tuscany
- Sedimentological-geochemical study of the top part of the Cambrian in metalliferous Fluminese-Iglesias (Sardinia)
- The sulphide mineralization in southern Tuscany: genetic criteria and prospecting
- Hercynian plutonism and metallogenesis in Sardinia
- Definition of the methods of sampling of airborne particulates from the Polytechnic of Milan - Department of Applied Physical Chemistry
- Characterization of mineral dust particle size by light microscopy and qualitative and quantitative determination of silica in environmental samples at the University of Siena - Institute of Occupational Medicine

1989

Marco Giamello begins to work in the field concerning the conservation of cultural heritage by working at a job of a general nature that led to the preparation of thematic maps of the historic center of Siena, illustrating the type and state of conservation of natural and artificial stone materials used in architecture

1983–1985

- Georesources Italy - Viale Vittorio Emanuele, Siena - Italy
Geophysic - spontaneous potential
- Geology and Geophysics – Viale Curtatone, Siena - Italy
Geophysic - Geoelectric and seismic
- Studio Geodrill - Strada Massetana Romana, Siena - Italy
Geotechnician - Drilling and soil classification

EDUCATION AND TRAINING

03/09/1979–20/12/1983

Degree in Geological Sciences

University of Siena

Siena (Italy)

Final grades: 110/110 with honors

PERSONAL SKILLS

Mother tongue(s)

Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages - Self-assessment grid

Communication skills Excellent ability of communication and teamwork

Organisational / managerial skills I directed several group of researchers and technicians in some projects with field and laboratory activity

Job-related skills Most of the research was conducted on the World Heritage Site of Siena ^(Selected publications 1,2,3,4), and others on the World Heritage Sites of Florence ^(5, 6), Pisa (Piazza dei Miracoli) ⁽⁷⁾ and San Gimignano ⁽⁸⁾.
 Many studies was carried out within a multidisciplinary team (Geologists, Chemists, Archaeologists, Physics, Historics of art, Architects, Engineers, Restorers) ^(Selected publications 2,3,4,5,8)

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Proficient user	Proficient user	Basic user	Independent user	Independent user

Digital skills - Self-assessment grid

Driving licence B

ADDITIONAL INFORMATION

TEACHING

Marco Giamello since 2006 teaches in Siena University courses relating to the conservation of cultural heritage and archaeometry for the degree courses of Archaeology and Earth Sciences and for Postgraduate School of the historical and artistic heritage.

Present - Official lecturer of "Archaeometry and Conservation of stone monuments" and "Applied Petrography to Cultural Heritage" in Siena University

November 2019 - Official lecturer of Archaeometry in SAIA - Italian Archaeological School, Athens - Greece

January 2018 - he held the presentation "Studies on masterpiece of Michelangelo and other Tuscan Art & Architecture" - Kean University, New Jersey.

October 2015 - he held three lectures at SAIC - School of the Art Institute of Chicago, Departments of Contemporary Practices and Historic Preservation, Chicago, Illinois. On Tuesday 27 "A geologist in Siena, Italy"; on Wednesday 28 "Geologist of the Architecture and Investigator of the Art"; on Friday 30 "Observation and studies of masterpieces of Tuscan sculptors: the David of Michelangelo and the Triptych of Tino di Camaino"

Selected Publications

- 1) M. GIAMELLO, G. GUASPARRI, R. NERI, G. SABATINI - 'Building materials in Siena architecture: type, distribution and state of conservation.' (1992) Science and technology for cultural heritage , Vol.1, 55 - 65
- 2) S. SIANO, F. FABIANI, R. PINI, R. SALIMBENI, M. GIAMELLO, G. SABATINI - 'Determination of damage thresholds to prevent side effects in laser cleaning of pliocene sandstone of Siena.' (2000) Journal of Cultural Heritage: A multidisciplinary Journal of Science and Technology for Conservation and Promotion, Vol.1, S47 - S53
- 3) M. GIAMELLO, F. DROGHINI, G. GUASPARRI, S. MUGNAINI, W. ROMUSSI, G. SABATINI, A. SCALA - 'Advanced information system for the investigation of deterioration of the floor in the Cathedral of Siena.' (2003) , 161 - 169, SPIE's International Symposium - Optical Metrology for Arts and Multimedia, Monaco (Germania) dal 23/6/2003 al 26/6/2003
- 4) F. FABIANI, M. GIAMELLO, G. GUASPARRI, G. SABATINI, A. SCALA - 'I materiali lapidei dell'architettura senese: l'arenaria pliocenica ("tufo impietrito"). Il supporto scientifico all'intervento di restauro di Palazzo Spannocchi.' (2001) , 73 pagine, Casa Editrice: Nuova Immagine editrice, Siena, Italia
- 5) M. GIAMELLO, D. PINNA, S. PORCINAI, G. SABATINI, S. SIANO - 'Multidisciplinary study and laser cleaning tests of marble surfaces of Porta della Mandorla, Florence.' (2004) , 841 - 848, 10TH

INTERNATIONAL CONGRESS ON DETERIORATION AND CONSERVATION OF STONE,
STOCCOLMA (SVEZIA) dal 27/6/2004 al 2/7/2004

6) F. DUMAS, M. GIAMELLO, G. GUASPARRI, M. MECCHERI, S. MUGNAINI, G. SABATINI - 'The meaning of the taròli on the marble surface of Michelangelo's David.' (2004) , 136 - 138 Volume: EXPLORING DAVID. Diagnostic Tests and State of Conservation., Casa Editrice: Giunti Editore, Firenze, Italia

7) Giamello M., Droghini F., Scala A., Terrosi A. Studio dei trattamenti antichi presenti sulle superfici dei paramenti lapidei della facciata absidale del Duomo di Pisa. Relazione redatta nell'ambito dell'incarico affidato dall'Opera della Primarziale. (technical report, 2015), 69 pagine

8) F. FABIANI, M. GIAMELLO, G. GUASPARRI, G. SABATINI, A. SCALA - 'The building materials of the historical center of San Gimignano (Tuscany). Lithotypes and distribution.' (2000) , 51 - 52, ASMOSIA 2000 - VI International Conference, Venezia (Italia) dal 15/6/2000 al 18/6/2000



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