CURRICULUM VITAE ET STUDIORUM: PROF. MARINA COCCHI

Personal data: Born in Roma, 14/09/1961
Present Position: Full Professor, Analytical Chemistry-Chemomerics
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EDUCATION

- **1989 –1991** Ph.D in Chemical Science, University of Parma-Modena-Ferrara (Dissertation 2/09/1992)
- **1985 – 1986** "Corso di perfezionamento in metodologie della Ricerca", University ofModena
- **25/07/1985** Master Thesis (Laurea VO) Chemistry 110/110 cum laude, University of Modena

PREVIOUS POSITIONS AND FELLOWSHIPS

- **1/09/2000 – 31/10/2014** Permanent position as Researcher Analytical Chemistry (CHIM/01)
- University of Modena and Reggio Emilia, Department of Chemical and Geological Science
- **1992-1994 & 1996-2000** Research Grant Recordati S.p.A, Computer chemistry and chemometrics applied to drug design of a1-adrenergic antagonists
- **1994 – 1996** Post. Doc. University of Modena and Reggio Emilia.
- **1988; 1992-1994 & 1996-2000** part-time High School Teacher

VISITS AND STAYS

- **2023** 19-29 April Visiting Researcher, University of Montpellier, France
- **2019** 20-28 May Visiting Researcher, University of Koper, Slovenia
- **2019** 4-11 February Visiting Researcher, University of Silesia, Katowice (PL)
- **2018** 12-23 March Visiting Professor, Universitè Lille 1
- **1990 - 1991** inside the Ph.D Research project: Development of Molecular Interaction Descriptors for 3D-QSAR, Chemometrics Research Group Prof. S. Wold. (Umeå University, Sweden).
- **1987** Svensk Institute Grant c/o Chemometrics Group Prof. S. Wold. (Umeå University, Sweden).

BRIEF DESCRIPTION OF THE RESEARCH ACTIVITY

- Author/Co-Author of more than 120 Publications on International Journals and Books (H-index 31, 2816 cit., Scopus)

Main Research lines:

Methodology development:

- Development and Application of Multivariate (PCA, PLS, SIMCA, Cluster Analysis,..), Multi-way (PARAFAC, Tucker, N-PLS) and Multiset (MCR) data analysis. Multi-way classification (NSIMCA, NPLS-DA).;
- Data Fusion methodologies;
- Coupling 2D Wavelet Transform to Multivariate Images Analysis for faultdetection and pattern recognition,
- Elaboration and Application of Algorithms performing Feature selection in Wavelet Domain for classification and regression tasks;

- Multivariate Statistical Process Control (multivariate and multi-way control charts, real time monitoring);
- Quantitative Structure Property Relationships (QSPR) and structure-activity (QSAR and 3D-QSAR);

Applications fields:
- Development of traceability and Autenticity models of typical regional foods. The "fingerprint" of the product is acquired through spectroscopic and/or chromatographic characterization. Data are elaborated by multivariate and multi-way methodologies.
- Multivariate calibration of quality properties, multivariate control chart to monitor raw materials and production processes.
- NMR data analysis of tissues and fluids (metabolomics) for the support to medical diagnosis.
- Image Analysis by innovative tools (N-way; 2D Wavelet Transform).
- Application of Experimental Design methodology to: optimization of analytical procedures, formulation problems, design of bio-glasses and to molecular dynamics simulation experiments for characterization of glass structure.

MAJOR COLLABORATIONS

- Prof. Rasmus Bro, Chemometrics and Analytical Technology - Department of Food Science University of Copenhagen.
- Prof. Jose Amigo, Chemometrics and Analytical Technology - Department of Food Science University of Copenhagen. He has been visiting Professor in Modena 1 Dicembre 2013 – 31 Gennaio 2014
- Prof. Beata Walczak, Institute of Chemistry - University of Silesia, Katowice (P). She has been visiting Professor in Modena 5 November 2015-5 February 2016.
- Prof. Cyril Ruckebusch, Polytech'Lille / LASIR CNRS, Université de Lille, Lille (F)
- Prof. Alberto Ferrer, Department of Applied Statistic, Operations Research and Quality, Universidad Politécnica de Valencia (ES). Since 2009 He is teaching in the "Scuola di Metodi Chemiometrici per il Monitoraggio di Processo" held in Modena.
- Prof. Jose Manuel Prats Montalban, Department of Applied Statistic, Operations Research and Quality, Universidad Politécnica de Valencia (Spain). He has been visiting in Modena as Post-Doc on 3 October – 2 November 2010 and as Visiting Professor on 9-15 April 2012
- Prof. Anna De Juan, Solution equilibria and Chemometrics group - Universitat de Barcelona.
- Prof. Raquel M Callejón, Dpto. Nutrición y Bromatología Toxicología y Med. Legal, Universidad de Sevilla. The PhD Student Rociò Reina visiting in Modena on 25 September- 24 December 2017.
- Dr. Carolina Santos Silva, Departamento de Engenharia Química - Federal University of Pernambuco (Brazil). She has been visiting post-Doc in Modena on May 2018.
- Dr. Anna Sandak and Dr. Kuba Sandak, InnoRenew CoE, Livade 6, SI-6310 Izola(SL)
- Prof. Federico Marini's group Rome Chemometrics, Università di Roma La Sapienza
- Dr. Monica Casale, Paolo Oliveri, Gruppo Chemiometria Università di Genova.

FUNDING AND PROJECTS

Assigned on the basis of external peer reviewing:
- 1.12.2021-1.06.2022 FAR2021 MISSION oriented-Linea FOMO "MOUNTAIN product: metodologie analitiche per coniugare IDentita, sostenibilità e valore (MOUNTAIN ID)" Principal Investigator.
- Scientific Referent/Tutor of the Doctorate Project "Big Data for Industry 4.0 and Materials 4.0", funded by Regione Emilia-Romagna under the Program "*Big Data per una regione europea più ecologica, digitale e resiliente - POR FSE 2014/2020 obiettivo tematico 10*". CUP E85F21001730002
- COST ACTION CA19145 - European Network for assuring food integrity using non-destructive spectral sensors start on 27/04/2020. MC member
- POR FSE 2014/2020 Data analytics for REAlization of predictive systems and Real Time Monitoring of productive process in industry 4.0 (DREAMTIME). PI.

- 2018 MAE Italian - Slovenian Scientific and Thecnological cooperation, Technologies applied to agriculture, forestry and food safety (TAFF): "Spectroscopy and multivariate data analysis for quality

control of modified wood (MULTI-SPEC)"

- ☐ 2015-2016 FAR2014: "Development of a analytical methodology fast and efficient for determination of mycotoxins in milk by mean of spectroscopic techniques and chemometrics" , Responsible
- ☐ 2011 AGER (Fondazioni in rete per la Ricerca Agrolaimentare):"New Analytical Methodologies for Geographical and Varietal Traceability of Oenological Products", Responsible WG1 Chemometrics
- ☐ 2010 Progetto di Ricerca, regione Emilia Romagna LR 28/98 P.S. 2010: 'Traceability of vinegars with labeled production'
- ☐ 2009 Provincia Modena, Agriculture ed Alimentation Policies LR N. 28 del 28.10.99 and CCIAA Modena: 'Geographical traceability of foodstuff by derect indicators
- ☐ 2008 Provincia Modena, Agriculture ed Alimentation Policies LR N. 28 del 28.10.99 and CCIAA Modena: 'Optimization of analytical methodologies, study of productive processes in food geographical traceability context'
- ☐ 2006 Provincia Modena, Agriculture ed Alimentation Policies LR N. 28 del 28.10.99 and CCIAA Modena Characterization of raw materials for "aceti balsamici" production. Evalutation of the influence of technological aspects of the production process in the quality of final products.
- ☐ PRIN 2005, MIUR Application of innovative chemiometrics tools, experimental design and multivariate analysis of signals and images for the characterization and optimisation of non conventional doughs"
- ☐ 2005 Regione Lombardia: ("CEREALOMB - Valorization of technological and zootecnic quality of cereal production of Lombardia region, through varietal and agricultural practices improvement, and differential storing of cereal grain".
- ☐ PROGETTI DI RICERCA INDUSTRIALE UNIMORE Bando 2005: "Sviluppo di metodiche per la diagnostica del comportamento di farine italiane nella produzione di pane industriale", Responsible
- ☐ 2004 Regione Emilia Romagna L.28: CABM: "Development of traceability protocol of grape musts of 'Emilia Romagna' origin, based on "markers of tipicity" and/or "fingerprinting". Evalutation of economical impact of traceability systems on the production chain."
- ☐ 2003 Regione Emilia Romagna L.28: "Organization of research call to establish traceability models for typical food products of 'Emilia Romagna' region, based on "markers of tipicity" and/or on "fingerprinting": the case of Lambrusco di Modena DOC
- ☐ 2002 CILEA-progetti congiunti Italia-Spagna:"Sviluppo di nuovi sensori elettrochimici ed applicazione di nuovi algoritmi chemiometrici alla trattazione di segnali analitici"
- ☐ COFIN2002 MIUR: "Sviluppo di modelli basati sulla simulazione strumentale dell'analisi sensoriale per la caratterizzazione di alimenti tipici"
- ☐ 2007 Ricerca Corrente Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta (IZS PLV) 19/2005 (Ministero Salute) Identificazione di tessuti ossei nei mangimi mediante classificazione chemiometrica dei loro spettri IR, Responsible

Research Contracts:

- ☐ 2021 Consorzio del Formaggio Parmigiano Reggiano "Metodologie analitiche ed elaborazione chemiometrica per la caratterizzazione del Prodotto di montagna - Progetto qualità Consorzio", Responsible

- ☐ 2021 Barilla G. e R. Fratelli S.p.A. "Sviluppo di modelli predittivi per individuare correlazioni fra le caratteristiche delle materie prime, dei semilavorati e le performance del prodotto finito" Responsible

- ☐ 2014-2016 East Balt Italia S.r.l. "Monitoraggio della qualità delle farine e dei prodotti da forno derivati", Responsible
- ☐ 2011 LITOKOL S.p.A , Rubiera: "Caratterizzazione di malte cementizie speciali e formulati industriali leganti per applicazioni in ambito edilizio mediante lo sviluppo di metodologie analitiche e metodi chemiometrici", Responsible
- ☐ 2005-2011 East Balt Italia S.r.l and Molino Quaglia S.p.A: " Development of methodologies for assessing the beahaviour of wheat flours of different origin and their mixtures in industrial bread making of bun". , Responsible
- ☐ 2009 Consorzio Creo Centro Ricerche Elettro-Ottiche: 'Analisi Di Spettri Di Assorbimento Infrarosso

Di Miscele Di Gas E Riconoscimento Gas Target' , Responsible.

TEACHING ACTIVITIES

In charge UNIMORE:
- Analytical Chemistry 2 (Bachelor in Chemistry)
- Chemometrics (Master in Chemistry)
- Elaboration of Scientific Data, Data Mining (Master in Informatics);
- DoE, Multiway Analysis, Classification, NIR, MIA (Doctoral level)

Teaching in Master and Doctoral Courses in other Universities:
- 1st SENSORFINT Training School in Chemometrics: "PLSR- Theory, Algorithm, Practical work; PLS- DA Implementation, Practical work." Séte (FR). 5-9 September 2023.
- Multivariate Statistical Process Control (MSPC) Module (1 ECTS) of the International School of Chemometrics 2021 University of Copenhagen and Ikerbasque University. 30 June-1July 2021.
- "Data Fusion. From Diversity to Integration" part of ChemoMind/Quimiometricamente Seminars for MSc/PhD students of Federal University of Pernambuco (Brazil), offered on line 27 November 2021 (3h).
- Short Course in Chemometrics: Introduction to Sample Classification Methods and Applications, Ankara University c/o Didim 30 April -1st May 2019
- "IV giornata di chemiometria applicata alle scienze farmaceutiche", Doctoral Degree "Scienze del Farmaco", University of Salerno, 18 Maggio 2018
- "III giornata di chemiometria applicata alle scienze farmaceutiche", Doctoral Degree "Scienze del Farmaco", University of Salerno, 14 Febbraio 2017
- 1st IMaSS Data Analysis School, Italian Mass Spectrometry Society, University of Torino 21-22 July 2016
- "II giornata di chemiometria applicata alle scienze farmaceutiche", Doctoral Degree "Scienze del Farmaco", University of Salerno, 11 Febbraio 2014
- "PAT and DoE", Master Degree in Chemistry, University of Bologna, 15 Gennaio 2014
- "I giornata di chemiometria applicata alle scienze farmaceutiche", Doctoral Degree: "Scienze del Farmaco", University of Salerno, 19 Dicembre 2012
- "PLS methodology", Master Degree in Chemistry, University of Pavia, 2-3 Maggio 2011

Responsible of Erasmus exchange: University of Life Science, Copenaghen-DK, University of Barcelona- Spain, Polytechnical University of Valencia-Spain, University of Koper, Slovenia, University of Lille- France

SUPERVISION OF PhD STUDENTS AND POSTDOCTORAL FELLOWS

Supervision PhD Thesis
- Supervisor of 17 Doctoral Thesis (2 Doctorate in Scienze Chimiche, 8 Doctorate in Modellistica, Simulazione Computazionale e Caratterizzazione Multiscala per le Scienze dei Materiali e della Vita, 7 Doctorate in Models and Methods for Material and Environmental Sciences); 13 discussed and approved of which 2 with European Doctor mention.
- Co–Supervisor of 3 Doctoral Thesis discussed and approved of which one of Siena University
- Supervision of 5 Post Doctoral Students

ACADEMIC DUTIES

- Member of University Government Bodies (Accademic Senatus) Unimore 1/11/2010 –01/11/2014

- ☐ Member of Reviewer body of MIUR for projects assessements (FIRB, SIR, PRIN) and quality of research (VQR)
- ☐ Member of Reprise reviewer's data bank of MIUR
- ☐ Member of Disciplinary Experts for quality assessment of ANVUR (Area 03) since 2015
- ☐ Responsible for Quality Assurance of Department of Chemical and Geological Sciences (Unimore) from November 2015 to November 2021
- ☐ Communication Referent of Department of Chemical and Geological Sciences (Unimore) 2021-2022
- ☐ Research Delegate of Department of Chemical and Geological Sciences (Unimore) since 2022

MEMBERSHIPS AND APPOINTMENTS

- ☐ Member of Coordination Group, of the Italian Chemometrics Group, period 2001- 2004 & 2012-2015
- ☐ President of the Italian Chemometrics Group, period 2007-2011
- ☐ Member of Coordination Group of Italian Group of Computational Chemistry (GICC) 2007-2010
- ☐ Member of Coordination Group of Italian Society for Near Infrared Spectroscopy (SISNIR) 2012-2016
- ☐ Member of Specialized Team on Multi-set and multi-way of the ERCIM Working Group on Computational and Methodological Statistics
- ☐ Member of Educational Committee of International Council in Near Inrared Spectroscopy (ICNIRS)
- ☐ Member of School Council of School of Graduate Studies in "Multiscale Modelling, Computational Simulations and Characterization in Material and Life Sciences" from 2005 to 2012
- ☐ Member of School Council of School of Graduate Studies in "Models and Methods for Material and Environmental Sciences. From 2013 to 2018.
- ☐ Member of 12 PhD Degree Committees in France, Spain, Netherland, Norway, Denmark, Italy

AWARDS

- ☐ Award of the National Scientific Qualification as Associate Professor 2012: Settore Concorsuale 03/A1 Analytical Chemistry
- ☐ Award of the National Scientific Qualification as Full Professor 2012 & 2018: Settore Concorsuale 03/A1 Analytical Chemistry
- ☐ 2016 BEST POSTER AWARD 7°Simposio Italiano di Spettroscopia nel Vicino Infrarosso, NIRITALIA 2016
- ☐ 2013 BEST POSTER AWARD. VIII Colloquium Chemiometricum Mediterraneum, Bevagna, Italy, 30 June – 4 July 2013
- ☐ 2012   First prize for Spin-Off category Premio Intraprendere Modena , edizione 2012
- ☐ 2011   BEST POSTER AWARD. 11th Scandinavian Symposium on Chemometrics. SSC11, Loen, Norway.
- ☐ 2009   BEST POSTER AWARD. XIII Chemometrics in Analytica Chemistry Conference CAC-2012, Budapest Hungary

ORGANISATION OF SCIENTIFIC MEETINGS AND SCHOOLS

International Conferences:

- ☐ XVIII Chemometrics in Analytical Chemistry, CAC2022, 29 August-2 Septmber 2022, Rome.
- ☐ ThRee-way methods In Chemistry And Psycolgy (TRICAP) 31 May - 5 June 2015, Zoldo (BL) Italy [http://people.ece.umn.edu/~nikos/TRICAP_home.html] https://www.journals.elsevier.com/chemometrics-and-intelligent-laboratory-systems/virtual-special-

  issues/multiway-and-multiset-methods
- ☐ 6° Simposio Italiano di Spettroscopia nel Vicino Infrarosso NIRITALIA 2014, 28-30 Maggio 2014, Modena (Italy)

National Conferences:
- ☐ Workshop del Gruppo Divisionale di Chemiometria 2007, 15-16 Febbraio 2007, Modena

(Italy) International School:

- ☐ Coordination of Multiway-Multiset International School Rome 2015.
- ☐ Since 2009, yearly: Chemometrics Tools for Process Monitoring School (Modena), organization and teaching.

SCIENTIFIC COMMITTEE BOARD MEMBER

- ☐ Colloquium Chemometricum Mediterraneum, CCMXI, 27 – 30 June 2023, Padova (Italy)
- ☐ 17th Scandinavian Symposium Chemometrics (SSC17) 6-9 September 2021, Aaborg – (Denmark)
- ☐ Colloquium Chemometricum Mediterraneum, CCMX, 12 – 14 June 2019, Minorca (Spain)
- ☐ XVII Chemometrics in Analytical Chemistry CAC2018, Halifax (Canada), 25-29 June 2018 https://www.cac2018halifax.com/
- ☐ ThRee-way methods in Chemistry And Psycolgy (TRICAP) 2018, 10-15 June 2018 New Mexico (USA) http://www.sandia.gov/tricap2018/Committees.html
- ☐ ADVANCES IN NMR AND MS BASED METABOLOMICS, Padova - November 14-16, 2017 https://metabolomics17.wixsite.com/padova
- ☐ Colloquium Chemometricum Mediterraneum, CCMIX, 27 – 30 June 2017, Arles (France) https://colloquim.sciencesconf.org/
- ☐ XVI Chemometrics in Analytical Chemistry CAC2016, Barcelona (Spagna), 6-10 June 2016 http://cacbarcelona2016.com
- ☐ 14th Scandinavian Symposium Chemometrics (SSC14) 14-17 June 2015, Chia - Sardegna (Italy)
- ☐ ThRee-way methods in Chemistry And Psycolgy (TRICAP) 2015, 31 May - 5 June 2015, Zoldo (BL), Italy, http://people.ece.umn.edu/~nikos/TRICAP_coms.html
- ☐ XIV Chemometrics in Analytical Chemistry CAC2014, Richmond, Virginia, 9-13 June 2014 https://archive.vcu.edu/cac2014/Administrative_Financial_Information_Layer_2.html#org_people
- ☐ Colloquium Chemometricum Mediterraneum, CCMVIII, 30 June – 4 July 2013, Bevagna (Italy)
- ☐ Colloquium Chemometricum Mediterraneum, CCMVII, 21-24 June 2010, Granada (Spain)

    http://www.ugr.es/~ecugr/en/commitees.html

- ☐ International Workshop on Multivariate Image Analysis, 28- 29 September 2009, Valencia (SPAIN)
- ☐ 6° Simposium Italiano Spettroscopia nel Vicino Infrarosso NIRITALIA 2014, 28-30 Maggio 2014, Modena (Italy)
- ☐ 7° Simposium Italiano Spettroscopia nel Vicino Infrarosso NIRITALIA 2016, 12-14 Ottobre 2016, Milano (Italy)

EDITORIAL ACTIVITIES

- ☐ Member of Editorial Board of Chemometrics and Intelligent Laboratory Systems since 05/2010
- ☐ Member of Advisory Board of Encyclopedia Comprehensive Chemometrics 2nd E. Wiley 2018-2020
- ☐ Editor of Data Fusion: Methods and Applications in Data Handling in Science and Technology Series, Elsevier 2019.
- ☐ Associate Editor for Frontiers in Analytical Science -Chemometrics since 03/2022
- ☐ Review Editor for Chemometrics section of Frontiers in Analytical Science since 04/2021
- ☐ Guest Editor del Virtual Special Issue in Chemometrics and Intelligent Laboratory System: "Selected paper from the 8th Colloquium Chemiometricum Mediterraneum (CCM VIII 2013), Bevagna, Italy, 30th June–4th July 2013"
- ☐ Guest Editor del Virtual Special Issue in Chemometrics and Intelligent Laboratory System: "Multiway and multiset methods: ThRee-way methods In Chemistry And Psychology conference, 8th edition, 2015"
- ☐ Referee activity for: Chemom. Intell. Lab. Syst., J. Chemometrics, Talanta, Anal. Chim. Acta, Analytical Letters, J. Near Infrared Spectroscopy, J. Agric. Food Chem., Mikrochimica Acta, J. Chem. Inf. Comp. Sci., Spectroscopy Letters, Anal. Chem., Anal. Bioanal. Chem., Food and Bioprocess Technologies, Journal of Texture Studies, Electroanalysis, Journal of Proteome Research, Italian Journal of Food Science, Journal of Food Science, and others..

INVITED PRESENTATIONS

Invited Lecture:

- <u>Marina Cocchi,</u> N. Cavallini, M. Li Vigni, C. Durante
  A Survey of Data Fusion Approaches in Chemometrics Context
  4th International Conference in New Trends in Chemometrics and Application, May 1-4 2019
  Didim (TURKEY)

- <u>Marina Cocchi</u>, M. Li Vigni
  Wavelet – Enhanced Mutlivariate Images Analysis
  Chimiometrie XVIII - 2017 , January 30-1 February, 2017, Paris, (France).

- <u>M. Cocchi,</u> M. Li Vigni, J. M. Prats Montalban, A. Ferrer
  Coupling 2D-Wavelet Decomposition and Multivariate Image Analysis
  4th EuCheMS Chemistry Congress August 26–30, 2012, Prague (Czech Republic)

- <u>Marina Cocchi</u>. A. Ulrici
  Mutlivariate Images Analysis and Image Feature Selection in WT Domain considering both cases
  where spatial location of relevant features matters or not.
  International Workshop on Multivariate Image Analysis, September 28-29, 2009, Valencia, (SPAIN).

Keynote Talk:

- <u>M. Cocchi</u>, C. Durante, R.Bro

  A classification tool for N-way array based on SIMCA methodology
  TRICAP 2009 meeting, June 14th– June 19th 2009, Núria (17534 Queralbs), Girona, Spain

- <u>Marina Cocchi</u>, Mario Li Vigni, Jose Manuel Prats Montalban, Alberto
  Ferrer Coupling 2D-Wavelet decomposition and Multivariate Image
  Analysis (MIA)
  5th International Chemometrics Research Meeting, September 25th -29th 2011, Berg en
  Dal / Nijmegen (Olanda)

- S. Favilla, C. Durante, M. Li Vigni, P. Baraldi , <u>M. Cocchi</u>

  Assessing features relevance in NPLS models by VIP
  TRICAP-2012: 7th edition of the multidisciplinary conference on ThRee-way methods In Chemistry
  and Psychology, June 2th - 7th 2012 Martin's Relais Genthof 4a, 8000/ Bruges (Belgio)

- <u>M. Cocchi</u>, M. Li Vigni
  NIR and Chemometrics beyond calibration
  6° Simposio Italiano di Spettroscopia nel Vicino Infrarosso (NIRITALIA 2014), 28-30 May
  2014, Modena

- <u>M. Cocchi</u>
  NIR & Chemometrics: how to handle NIR signals, recover information and build models
  2nd Workshop on application of NIR spectroscopy for wood science and technology
  research (NIR&WOOD sounds GOOD 2), 21 Aprile 2016, COST Action FP1303 & FP140,
  CNR-IVALSA San Michele all'Adige (TN)

- <u>M. Cocchi</u>
  La chemiometria in ambito QbD e PAT
  NIR & PAT: a smart combination, 24 Maggio 2017, Milano

TECHNOLOGICAL TRANSFER

Responsible of the Spin-Off company: chemSTAMP (Service for Traceability Authenticity and Monitoring

of Product and Processes) (2012-2018) www.chemstamp.it
Prizes First prize for Spin-Off category Premio Intraprendere Modena , edizione 2012

BIBLIOMETRIC INDICATORS (Scopus) AND SCIENTIFIC PRODUCTION
H-index 31, cit. 2816. Scientific production: 127 papers in International Journals with Referee; 8 papers on International Proceedings with Referee and ISSN; 17 book chapters on International books with ISBN. Corresponding Author of 37 papers and 9 book chapters.

Personal skills and competences

Other language(s): English (C1), French (B2), Swedish

(A2) Computer skills and competences:
Programming: Fortran, Matlab
Chemometrics Software: SIMCA, MODDE, Wavelet Toolbox, PLS-Toolbox; Computational chemistry software: Gaussian, Mopac, Quanta.

PUBLICATIONS 2014– 2023

[1] Pellacani, S.; Cocchi, M.; Durante, C.; Strani, L. Exploring the Effect of Different Storage Conditions on the Aroma Profile of Bread by Using Arrow-SPME GC-MS and Chemometrics. *Molecules*, **2023,** 28, 3587. https://doi.org/10.3390/molecules28083587

[2] Tanzilli, D.; D'Alessandro, A.; Tamelli, S.; Durante, C.; Cocchi, M.; Strani, L. A Feasibility Study towards the On-Line Quality Assessment of Pesto Sauce Production by NIR and Chemometrics. *Foods,* **2023**, 12, 1679. https://doi.org/10.3390/foods12081679

[3] Mustorgi, E.; Durante, C.; Malegori, C.; Greco, P.; Bartoletti, R.; Cocchi,M.; Casale, M. An analytical approach based on excitation-emission fluorescence spectroscopy and chemometrics for the screening of prostate cancer through urine analysis: A proof–of–concept study, *Chemometrics and Intelligent Laboratory Systems*, **2023**, 234,104752, https://doi.org/10.1016/j.chemolab.2023.104752.

[4] Ahmad, M, Vitale, R, Cocchi, M, Ruckebusch, C. Weighted multivariate curve resolution—Alternating least squares based on sample relevance. *Journal of Chemometrics*, **2023**, e3478. doi:10.1002/cem.3478

[5] Ordoudi, S.A.; Strani, L.; Cocchi, M. Toward the Non-Targeted Detection of Adulterated Virgin Olive Oil with Edible Oils via FTIR Spectroscopy & Chemometrics: Research Methodology Trends, Gaps and Future Perspectives. *Molecules*, **2023**, 28, 337. https://doi.org/10.3390/molecules28010337

[6] Bertani, M, Pallini, A, Cocchi, M, Menziani, MC, Pedone, A. A new self-consistent empirical potential model for multicomponent borate and borosilicate glasses. *J Am Ceram Soc.* **2022**; 105, 7254– 7271. *https://doi.org/10.1111/jace.18681*

[7] Durante, C.; Anceschi, L.; Brighenti, V.; Caroli, C.; Afezolli, C.; Marchetti, A.; Cocchi, M.; Salamone, S.; Pollastro, F.; Pellati, F. Application of experimental design in HPLC method optimisation for the simultaneous determination of multiple bioactive cannabinoids. *Journal of Pharmaceutical and Biomedical Analysis,* **2022**, 221*. doi:10.1016/j.jpba.2022.115037*

[8] Fornari, F.; Montisci, F.; Bianchi, F.; Cocchi, M.; Carraro, C.; Cavaliere, F.; Cozzini, P.; Peccati, F.; Mazzeo, P. P. ; Riboni, N.; Careri, M.; Bacchi, A.
Chemometric-assisted cocrystallization: supervised pattern recognition for predicting the formation of new functional cocrystals,
Chemometrics and Intelligent Laboratory Systems, **2022,** 226,104580,
doi.org/10.1016/j.chemolab.2022.104580.

[9] Strani, L.; D'Alessandro, A.; Ballestrieri, D.; Durante, C.; Cocchi, M.
Fast GC E-Nose and Chemometrics for the Rapid Assessment of Basil Aroma.
Chemosensors, **2022,** 10, 105. https://doi.org/10.3390/chemosensors10030105

[10] Strani, L., Vitale, R., Tanzilli, D., Bonacini, F., Perolo, A., Mantovani, E., Ferrando, A., Cocchi*, M.
A multiblock approach to fuse process and near-infrared sensors for on-line prediction of polymer properties.
Sensors, **2022**, 22(4) doi:10.3390/s22041436

[11] López-Iglesias, D., Fanelli, F., Marchi, L., Alcántara, R., Cocchi, M., Cubillana-Aguilera, L., Palacios-Santander J.M., García-Guzmán, J. J.
Ceramic polyaniline-carbon composite obtained by ultrasound-assisted sol–gel route: Electrochemical performance towards environmental pollutants.
Journal of Electroanalytical Chemistry, **2022**, 905 doi:10.1016/j.jelechem.2021.115971

[12] Ahmad, M,, Vitale, R., Silva, C.S., Ruckebusch, C., Cocchi*, M.
A novel proposal to investigate the interplay between the spatial and spectral domains in near-infrared spectral imaging data by means of Image Decomposition, Encoding and Localization (IDEL)
Anal. Chim. Acta **2022**, 1191, 339285 DOI:10.1016/j.aca.2021.339285

[13] D'alessandro, A., Ballestrieri, D., Strani, L., Cocchi, M*., Durante, C.
Characterization of basil volatile fraction and study of its agronomic variation by ASCA
Molecules, **2021**, 26(13), 3842

[14] Strani, L., Mantovani, E., Bonacini, F., Marini, F., Cocchi, M*.
Fusing NIR and Process Sensors Data for Polymer Production Monitoring
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Il sottoscritto dichiara che quanto indicato nel presente documento corrisponde al vero ai sensi dell'art.46 e 47 D.P.R. 445/2000 ed esprime il proprio consenso affinché i dati personali forniti possano essere trattati nel rispetto del D.lgs n.196/03, per gli adempimenti connessi alla presente procedura.

Il
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