

CURRICULUM VITAE ET STUDIORUM: PROF. MARINA COCCHI



Personal data: Born in Roma, 14/09/1961

Present Position: Associate Professor, Analytical Chemistry-Chemometrics

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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 of Modena
- 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 α_1 -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

- 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, Université 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 100 Publications on International Journals and Books (H-index 27, 2261 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 fault detection 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 Authenticity 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:

- 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 Technological 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 Agrolimentare):“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 direct 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. Evaluation 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". Evaluation 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:

- 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 behaviour 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 (Bachelor in Chemistry)
- Chemometrics (Master in Chemistry)
- Data Mining (Master in Informatic);
- DoE, Multiway Analysis, Classification, NIR, MIA (Doctoral level)

Teaching in Master and Doctoral Courses in other Universities:

- "PLS methodology", Master Degree in Chemistry, University of Pavia, 2-3 Maggio 2011
- "I giornata di chemiometria applicata alle scienze farmaceutiche", Doctoral Degree: "Scienze del Farmaco", University of Salerno, 19 Dicembre 2012

- “Il 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
- 1st IMASS Data Analysis School, Italian Mass Spectrometry Society, University of Torino 21-22 July 2016
- “III giornata di chemiometria applicata alle scienze farmaceutiche”, Doctoral Degree “Scienze del Farmaco”, University of Salerno, 14 Febbraio 2017
- “IV giornata di chemiometria applicata alle scienze farmaceutiche”, Doctoral Degree “Scienze del Farmaco”, University of Salerno, 18 Maggio 2018
- Short Course in Chemometrics: Introduction to Sample Classification Methods and Applications, Ankara University c/o Didim 30 April -1st May 2019

Responsible of Erasmus exchange: University of Life Science, Copenhagen-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 13 Doctoral Thesis (2 Doctorate in Scienze Chimiche, 8 Doctorate in Modellistica, Simulazione Computazionale e Caratterizzazione Multiscala per le Scienze dei Materiali e della Vita, 3 Doctorate in Models and Methods for Material and Environmental Sciences); 12 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 3 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 assessments (FIRB, SIR, PRIN) and quality of research (VQR)
- Member of Disciplinary Experts for quality assessment of ANVUR (Area 03) since 2015

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 Infrared Spectroscopy (ICNIRS)
- Member of School Council of School of Graduate Studies in “Multiscale Modelling, Computational Simulations and Characterization in Material and Life Sciences”
- Member of School Council of School of Graduate Studies in “Models and Methods for Material and Environmental Sciences.
- Member of 9 PhD Degree Committees in 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, CAC2020, CAC at the Top 21-26 June 2020, Courmayeur-Chamonix (I/FR). <https://cac2020.sciencesconf.org/>
- 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

- 17th Scandinavian Symposium Chemometrics (SSC17) 6-9 September 2021, Aalborg – (Denmark)
- Colloquium Chemiometricum 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 Chemiometricum 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 Chemiometricum Mediterraneum, CCMVIII, 30 June – 4 July 2013, Bevagna (Italy)
- Colloquium Chemiometricum Mediterraneum, CCMVII, 21-24 June 2010, Granada (Spain)

<http://www.ugr.es/~ecugr/en/committees.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 Enciclopedia Comprehensive Chemometrics 2nd E. Wiley 2018-2020
- Editor of Data Fusion: Methods and Applications in Data Handling in Science and Technology Series, Elsevier 2019.

- 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:

- Marina Cocchi, 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)
- Marina Cocchi, M. Li Vigni
Wavelet – Enhanced Multivariate Images Analysis
Chimiometrie XVIII - 2017 , January 30-1 February, 2017, Paris, (France).
- M. Cocchi, 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)
- Marina Cocchi, A. Ulrici
Multivariate 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:

- M. Cocchi, 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
- Marina Cocchi, 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, Val Monte Berg en Dal / Nijmegen (Olanda)
- S. Favilla, C. Durante, M. Li Vigni, P. Baraldi , M. Cocchi

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)

- M. Cocchi, M. Li Vigni
NIR and Chemometrics beyond calibration
6° Simposio Italiano di Spettroscopia nel Vicino Infrarosso (NIRITALIA 2014), 28-30 May 2014, Modena
- M. Cocchi
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), 21Aprile 2016, COST Action FP1303 & FP140, CNR-IVALSA San Michele all'Adige (TN)
- M. Cocchi
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 27, cit. 2183. Scientific production: 100 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 30 papers and 8 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 2011 - 2020

[1] Sandak, J., Sandak, A., Cocchi, M.

Multi-sensor data fusion and parallel factor analysis reveals kinetics of wood weathering
Talanta 225 **2021** 122024

[2] M. Li Vigni, C. Durante, S. Michelini, M. Nocetti, M. Cocchi.

Preliminary Assessment of Parmigiano Reggiano Authenticity by Handheld Raman Spectroscopy.

Foods **2020**, 9, 1563; doi:10.3390/foods9111563

[3] M. Ahmad, R. Vitale, C.S. Silva, C. Ruckebusch, M. Cocchi*

Exploring local spatial features in hyperspectral image.

J. Chemometrics **2020**, 34, e3295. DOI:10.1002/cem.3295

[4] Righi, V.; Cavallini, N.; Valentini, A.; Pinna, G.; Pavesi, G.; Rossi, M. C.; Puzzolante, A.; Mucci, A.; Cocchi, M.

A metabolomic data fusion approach to support gliomas grading.

NMR in Biomedicine **2020**, 33(3), e4234-e4250. <http://dx.doi.org/10.1002/nbm.4234>

- [5] M. Cocchi, M. Li Vigni, C. Durante
Multi Way Classification
In B. Walczak, R. Tauler (Eds.) *Comprehensive Chemometrics*, 2nd edition, Volume 3 Elsevier **2020**, pp. 701-720. doi.org/10.1016/B978-0-12-409547-2.14590-1
- [6] M. Cocchi, Introduction: way and means to deal with data from multiple source. In M. Cocchi (Ed.), *Data Fusion Methodology and Applications*, [Data Handling in Science and Technology](#), Elsevier 2019. **ISBN**: 9780444639844
- [7] A. Biancolillo, R. Bogue, Cocchi, F. Marini, Chpt. 10 Data Fusion strategies in food analysis. In M. Cocchi (Ed.), *Data Fusion Methodology and Applications*, [Data Handling in Science and Technology](#), Elsevier 2019. **ISBN**: 9780444639844
- [8] N. Cavallini, F. Savorani, R. Bro, M. Cocchi*
Fused Adjacency Matrices to enhance information extraction: the beer benchmark
Anal. Chim. Acta, **2019**, 1061, 70-83.
- [9] R. Rios-Reina, R. M. Callejón, F. Savorani, J.M. Amigo, M. Cocchi*
Data Fusion Approaches In Spectroscopic Characterization and Classification of PDO Wine Vinegars
Talanta **2019**, 198, 560-572
- [10] M. Cocchi, A. Biancolillo, F. marini
Chemometric methods for classification and feature selection
In R. Tauler, J. Jaumot (Eds.) *Comprehensive Analytical Chemistry (CAC)* vol.82: "Data Analysis for Omic Sciences: Methods and Applications", Elsevier **2018**, Chpt. 10, pp. 265-295. ISBN: 978-0-444-64044-4
- [11] C. Durante, L. Bertacchini, M. Cocchi, D. Manzini, A. Marchetti, M.C. Rossi, S. Sighinolfi, L. Tassi Development of 87Sr/86Sr maps as targeted strategy to support wine quality. *FOOD CHEMISTRY*, (**2018**). p. 139-146, ISSN: 0308-8146
- [12] M. Li Vigni, J.M. Prats-Montalaban, A. Ferrer, M. Cocchi*
Coupling 2D-wavelet decomposition and multivariate image analysis (2D WT-MIA)
J. Chemometrics **2018**, 32, e2970-e2990
- [13] M. Cocchi*, M. Li Vigni, C. Durante Chemometrics
Bioinformatic
In C. A. Georgios, P. Danezis (Ed.) *Food Authentication : Management, Analysis and Regulation*, J. Wiley & sons, Chpt. 17 pp. 483-520, 2017. ISBN13 9781118810262
- [14] M. Cocchi
Chemometrics for food quality control and authentication,
in *Encyclopedia of Analytical Chemistry* R.A. Meyers (Ed.), John Wiley & Sons Ltd, pp. 1-29, **2017**
- [15] D. Melucci, M. Cocchi, F. Corvucci, M. Boi, L. Tositt, F. de Laurentiis, A. Zappi, C. Locatelli, M. Locatelli
Chemometrics for the direct analysis of solid samples by spectroscopic and chromatographic techniques
In A. Luna (Ed.), *Chemometrics: Methods, Applications and New Research*, NOVA Publisher, in press **2017**. ISBN: 978-1-53610-518-6
- [16] A. Elia, M. Cocchi*, C. Cottini, D. Riolo, C. Cafiero, R. Bosi, E. Lutero
Multivariate data analysis to assess dry powder inhalers performance from powder properties
POWDER TECHNOLOGY, 301 (**2016**), 830-838
- [17] M. Li Vigni and M. Cocchi*
Chpt. 13 Multiresolution Analysis and Chemometrics for Pattern Enhancement and Resolution in Spectral Signals and Images, In C. Ruckebusch (Ed.) *Resolving Spectral Mixtures* Vol. 30, pp. 409-451, *Data Handling in Science and Technology*, © 2016 Elsevier . http://dx.doi.org/10.1016/B978-0-444-63638-6.00013-9
- [18] J. M. Prats-Montalbán, M. Cocchi, A. Ferrer
N-way modeling for wavelet filter determination in multivariate image analysis
J. Chemometrics 29 (**2015**), 379-388, DOI: 10.1002/cem.2717

- [19] C. Durantea, C. Baschieri, L. Bertacchini, D. Bertelli, M. Cocchi, A. Marchetti, D. Manzini, G. Papotti, S. Sighinolfi
An analytical approach to Sr isotope ratio determination in Lambrusco wines for geographical traceability purposes
Food Chemistry, 173 (2015), 557-563. DOI: 10.1016/j.foodchem.2014.10.086
- [20] M. Silvestri, A. Elia, D. Bertelli, E. Salvatore, C. Durante, M. Li vigni, A. Marchetti, M. Cocchi*
A mid level Data Fusion strategy for the varietal classification of Lambrusco P.D.O. Wines
Chemom. Intell. Lab. Syst 137 (2014), 181-189. doi:10.1016/j.chemolab.2014.06.012
- [21] S. Favilla, A. Huber, G. Pagnoni, F. Lui, P. Facchina, M. Cocchi, P. Baraldi, C. A. Porro
Ranking brain areas encoding the perceived level of pain from fMRI data
NeuroImage 90 (2014) 153–162
- [22] C. Durante, C. Baschieri, L. Bertacchini, M. Cocchi, S. Sighinolfi, M. Silvestri, A. Marchetti
Geographical traceability based on $^{87}\text{Sr}/^{86}\text{Sr}$ indicator: A first approach for PDO Lambrusco wines from Modena
Food Chemistry 141 (2013) 2779–2787.
- [23] S. Favilla, C. Durante, M. Li Vigni, M. Cocchi* Assessing feature relevance in NPLS models by VIP *Chemom. Intell. Lab. Syst* (2013) ,129, 76–86.
- [24] S. Totaro, C. Durante, P. Coratza, G. Foca, M. Li Vigni, A. Marchetti, M. Marchetti, M. Cocchi.
Soils sampling planning in traceability studies by means of Experimental Design approaches
Chemom. Intell. Lab. Syst (2013), 214, pp. 14-20. <http://dx.doi.org/10.1016/j.chemolab.2013.03.001>
- [25] M. Li Vigni, C. Baschieri, A. Marchetti, M. Cocchi*
RP-HPLC and Chemometrics for wheat flour protein characterization in an industrial bread-making process monitoring context
Food. Chem. (2013), 139, 553-562. <http://dx.doi.org/10.1016/j.foodchem.2013.01.085>.
- [26] M. Silvestri, L. Bertacchini, C. Durante, A. Marchetti, E. Salvatore, M. Cocchi*
Application of Data Fusion Techniques to Direct Geographical Traceability Indicators
Anal. Chim. Acta (2013), 769, 1-9. <http://dx.doi.org/10.1016/j.aca.2013.01.024>. **Selected as Feature Article**
- [27] M. Li Vigni, M. Cocchi*
Near infrared spectroscopy and multivariate analysis to evaluate wheat flour doughs leavening and bread properties
Anal. Chim. Acta (2013), 764, 17-23. IF 4.55 (4.14)
- [28] E. Salvatore, M. Cocchi*, A. Marchetti, F. Marini, A. de Juan
Determination of phenolic compounds and authentication of PDO Lambrusco wines by HPLC-DAD and chemometric techniques
Anal. Chim. Acta (2013), 761, 34-45. IF 4.55 (4.14)
- [29] M. Li Vigni, C. Durante, M. Cocchi*
Chpt. 3 Exploratory Data Analysis
In F. Marini (Ed.) *Chemometrics in Food Chemistry Vol. 28 Data Handling in Science and Thecnology series*, Elsevier 2013, ISBN 9780444595287.
- [30] L. Bertacchini, M. Cocchi, M. Li Vigni, A. Marchetti, E. Salvatore, S. Sighinolfi, M. Silvestri, C. Durante
Chpt. 10 The impact of chemometrics on food traceability
In F. Marini (Ed.) *Chemometrics in Food Chemistry Vol. 28 Data Handling in Science and Thecnology series*, Elsevier 2013, ISBN 9780444595287.
- [31] E. Salvatore, M. Bevilacqua, R. Bro, F. Marini, M. Cocchi *
Classification methods for multiway arrays as a basic tool for food PDO authentication
In M. De La Guardia and A. Gonzalez Illueca (Eds.) *Food protected designation of origin: methodologies & applications*. Wilson & Wilson's Comprehensive Analytical Chemistry, Volume 60, 2013. Elsevier B.V ISBN: 978-0-444-59562-1.

- [32] L. Bertacchini, C. Durante, A. Marchetti, S. Sighinolfi, M. Silvestri, M. Cocchi*
Use of X-ray diffraction technique and chemometrics to aid soil sampling strategies in traceability studies
Talanta (**2012**), 98, 178-184. IF 3.794 (3.747)
- [33] N. Basant, C. Durante, M. Cocchi *and M. C. Menziani*
Modeling the Binding Affinity of p38a MAP Kinase Inhibitors by Partial Least Squares Regression
Chem Biol Drug Des (**2012**), 80, 455-470. IF 2.28
- [34] F. Filomia, P. Saxena, C. Durante, F. de Rienzo, M. Cocchi, and M. C. Menziani
COMPUTATIONAL INSIGHTS INTO ADAMTS4, ADAMTS5 AND MMP13 INHIBITOR SELECTIVITY
Molecular Informatics (**2012**), 31(6-7), 421-430. IF 2.39
- [35] Cocchi, M., Durante, C., Lusvardi, G., Malavasi, G., Menabue, L.

- Evaluation of the behaviour of fluorine-containing bioactive glasses: reactivity in a simulated body fluid solution assisted by multivariate data analysis
Journal of Materials Science: Materials in Medicine, (2012), 23, 639-648. I.F. 2.32
- [36] S. Manzinia, C. Durante, C. Baschieri, M. Cocchi, S. Sighinolfi, S. Totaro, A. Marchetti
Optimization of a Dynamic Headspace – Thermal Desorption – Gas Chromatography/Mass Spectrometry procedure for the determination of furfurals in vinegars
Talanta (2011) 85 (2), pp. 863-869. IF 3.72 (3.49).
- [37] Marengo, E., Cocchi, M., Demartini, M., Robotti, E., Bobba, M., Righetti, P.G.
Investigation of the applicability of Zernike moments to the classification of SDS 2D-PAGE maps
Anal. Bioanal. Chem. (2011) 1-13. I.F. 3.84
- [38] C. Durante, M. Cocchi,* R. Bro
A classification tool for N-way array based on SIMCA methodology
Chemom. Intell. Lab. Syst. (2011) 106, 73-85. IF 2.22 (2.41).
- [39] M. Cocchi, C. Durante, P. Lambertini, S. Manzini, A. Marchetti, S. Sighinolfi.
Evolution of 5-(hydroxymethyl)furfural and furfural in the production chain of the aged vinegar Aceto Balsamico Tradizionale di Modena
Food Chemistry, (2011), 124, 822-832. I.F. 3.46 (3.92).
- [40] M. Cocchi, C. Durante, G. Foca, M. Li Vigni, A. Marchetti, S. Sighinolfi, L. Tassi, A. Ulrici
Horse-chestnut seeds: Seeds of *Aesculus Hippocastanum* L. and their possible utilization for human consumption,
In *Nuts and Seeds in Health and Disease*, V. R. Preedy, R.R. Watson and V.B. Patel (Ed.s), Academic Press, London (2011) chpt 65, ISBN: 978-81-7895-332-8
- [41] M. Li Vigni, C. Baschieri, G. Foca, A. Marchetti, A. Ulrici and M. Cocchi*
Monitoring Flour Performance in Bread Making
In *Flour and Breads and their Fortification in Health and Disease*, V. R. Preedy, R.R. Watson and V.B. Patel (Ed.s), Academic Press, London (2011) chpt.2, pp. 15-25. ISBN: 9780123808868
DOI: 10.1016/B978-0-12-380886-8.10002-9
- [42] M. Cocchi, C. Durante, A. Marchetti, M. Li Vigni ,C. Baschieri, L. Bertacchini, S. Sighinolfi, L. Tassi, S. Totaro
Optimization of microwave assisted digestion procedure by means of chemometric tools
In *Microwaves: Theoretical Aspects and Practical Applications in Chemistry*, A. Marchetti (ed.), Transworld Research Network, Trivandrum (India), 2011: 203-226. ISBN: 978-81-7895-508-7.

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 Dichiarante

