# Dr. José Manuel Amigo Rubio Curriculum Vitae

**Full name:** José Manuel Amigo Rubio
**Born:** 01 October 1978, Barakaldo, Spain. **Nationality:** Spanish.
**e-mail:** josemanuel.amigo@ehu.eus

**Education:**
B.Sc. Analytical Chemistry, University of Basque Country, Spain. 2001
PhD. Chemistry, Autonomous University of Barcelona, Spain. July 25th, 2007.
**Present employment:**
Ikerbasque Research Professor. July 1st, 2019. Bilbao. Spain
Distinguished Professor. July 1st, 2019. Department of Analytical Chemistry. UPV-EHU. Spain.

**ORCID:** orcid.org/0000-0003-1319-1312
**Google Scholar:** https://scholar.google.dk/citations?user=00AqrJ4AAAAJ&hl=da&oi=ao
**LinkedIn:** https://www.linkedin.com/in/jos%C3%A9-manuel-amigo-rubio-41b9a73a/
**Researchgate:** https://www.researchgate.net/profile/Jose_Amigo
**HYPER-Tools website:** https://www.hypertools.org/
**HYPER-Tools youtube:** https://www.youtube.com/channel/UC6WtvjniiKTaLVr5KmYCprw

## Other employments/scientific positions:

- Guest Professor of the Department of Chemical Engineering, Federal University of Pernambuco, Brazil. March 2017 - March 2018.
- January 1st, 2011 – June 30th, 2019: Associate Professor of the department of Food Science, Chemometrics and Analytical Technologies CAT (former Spectroscopy and Chemometrics, former Quality & Technology), University of Copenhagen.
- July 1st, 2010 – December 31st, 2010: Scientific Secretary of the department of Food Science, Chemometrics and Analytical Technologies CAT (former Spectroscopy and Chemometrics, former Quality & Technology), University of Copenhagen.
- December 1st, 2007 – June 30th, 2010: Post-doctoral student of the department of Food Science, Chemometrics and Analytical Technologies CAT (former Spectroscopy and Chemometrics, former Quality & Technology), University of Copenhagen.
- September 2002 – September 2007: PhD in Chemistry in the group of Applied Chemometrics in the Autonomous University of Barcelona, Spain, under the direction of Prof. S. Maspoch and Prof. J. Coello.
- July 2001 - September 2002: Work in the project "Chemical analysis and statistic modelling of the presence of organic pollutants in water and sediments in a river of Bizkaia, Basque Country", under the supervision of Dr. G. Arana and Prof. L.A. Fernández

## Languages:

| | **Speak** | **Read** | **Write** |
|---|---|---|---|
| **Spanish** | Mother tongue | Mother tongue | Mother tongue |
| **English** | Very good | Excellent | Very good |
| **Portuguese** | Good | Good | Good |
| **Italian** | Good | Good | Fair |
| **Catalan** | Good | Good | Good |

## Scientific focus/Fields of proficiency:

- Hyperspectral, multispectral and Digital Image Analysis
- Multivariate, multi-way, big data analysis, Chemometrics
- Education in Chemometrics

## Awards:

- **2019: Tomas Hirschfeld Award** for contribution in the Near Infrared community. International Council of Near Infrared.
- **2014: Chemometrics and Intelligent Laboratory Systems Award** for contribution to the development of Chemometrics in the last 5 years.
- Six '**Best poster**' awards in international conferences:
    - Screening procedures to study homogeneity in pharmaceutical tablets. Carlos Cairós, José Manuel Amigo, Jordi Coello, Santiago Maspoch. Visionday 2008. Lyngby, Denmark. May, 2008.
    - Effects of Different Length of Exposure Time after Cold Storage on Aroma Profile of Ildrød Pigeon (Malus domestica) Apples (Runner-up) R. M. Callejón, M. J. Popielarz, J. M. Amigo, M. L. Morales, A. M. Troncoso, T. B. Toldam-Andersen, M. A. Petersen.Scandinavian Symposium on Chemometrics. Loen/Stryn, Norway. 8-11/06/2009.
    - MCR-ALS applied to milk lactic acid fermentation monitoring. Silvia Grassi, Cristina Alamprese, Veronica Bono, Claudia Picozzi, Roberto Foschino, Ernestina Casiraghi, José Manuel Amigo. NIR 2013 - 16th International Conference on Near Infrared Spectroscopy. 2 - 7 June 2013, La Grande-Mote, France.
    - Classification of plastics containing brominated flame retardant through hyperspectral imaging and chemometrics. Marta Bevilacqua, José Manuel Amigo. 7th International Conference on Near Infrared Spectroscopy. Foz do Iguassu - Brazil - 18th to 23rd October 2015.
    - From Hyperspectral to Multispectral imaging: Identification of proper spectral channels for the construction of effective NIR multispectral imaging systems (Oral presentation award). Rosalba Calvini, José Manuel Amigo, Alessandro Ulrici. NIR Italia 2016. 12-14 October 2016. Milan, Italy.
    - Analisi multivariata e espettroscopia NIR per la determinazione del grado di contaminazione de aflatossina M1 in latte bobino. M. Li Vigni, C. Durante, J.M. Amigo, N. Cavallini, M. Cocchi, N. Rizzi. NIR Italia 2016. 12-14 October 2016. Milan, Italy.
- Extraordinary award for PhD Thesis. Awarded in 2010.

## Scientific stays abroad/research visits (granted):

- Dept. of Food Sciences, Quality and Technology. University of Copenhagen. Denmark. 4 months (01/11/2006 - 01/03/2007). Granted by Catalan Government.
- Dept. of Agricultural Engineering and socio-Economics. Graduate School of Agricultural Science. Kobe University. Japan. 2 months (31/01 - 01/04, 2012). Granted by Japanese Government.
- Dept. of Chemistry. University of Modena. Italy. 2 months (01/12/2013 - 31/01/2014). Granted by Italian Government.
- Dept. of Chemical Engineering. Federal University of Pernambuco. Brazil. 10 months from 2014 to 2019. Granted by Brazilian Government (CAPES): (15-30/03/2014), (17/07/ - 17/08/2014), (17/10/ - 22/11/2015), (18/01/ - 22/02/2016) (21/07/ - 03/10/2016), (05/01/ - 28/02/2017), (17/03/2017 - 16/03/2018), (22/02/2019 – 22/04/2019).
- Dept. Instrumental Analysis. University of Concepción. Chile. 1 week (01/08/ - 07/08/2016), 1 week (15/01/2020 – 25/01/2020).
- Institute of Chemistry. University of Silesia in Katowice. Poland. 1 week (01/12/2019 – 06/12/2019).

## Teaching:

- **Certificate of Higher Education Teaching (*Adjunktpædagogikum)***: Organized by the Department of Science Education (Institut for Naturfagenes Didaktik) of the University of Copenhagen. Workload of 250 hours.
- **Introduction to University Pedagogy:** Organized by the Department of Science Education (Institut for Naturfagenes Didaktik) of the University of Copenhagen. April 2012. Workload of 3 ECTS credits.

**- Bachelor, MSc:**

- Assistant Professor at the Autonomous University of Barcelona, Spain. September 2002 – September 2007. A total of 993 teaching hours in Bachelor of Chemistry, Veterinary, Food Technology or Environment Sciences.
- Participation in two major projects focused on improvement of Learning Skills for the Bachelor students:

**1.** Improvement of the Formation Level of Bachelor Students. Implementation of a new Laboratory Practice. Participation as assistant teacher. 2006. Autonomous University of Barcelona, Spain. Supported by the Catalan Government.

**2.** Chemical Analysis. Instrumental Methodologies. Brief Laboratory sessions. Participation as assistant teacher. 2005. Autonomous University of Barcelona, Spain. Supported by "Plan de Formación Permanente" of "Departament d'Ensenyament" of the Catalan Government. 20 hours.

**- PhD courses:** Main coordinator of 5 PhD courses at the University of Copenhagen, Denmark and University of the Basque Country, Spain:

**1.** Introduction to MATLAB for multivariate data analysis. LPHD155. 3 ECTS. Once a year (2011 - 2019).
**2.** Copenhagen School of Chemometrics. LPHD191. 12 ECTS. Once a year (2013 - 2019).
**3.** Hyperspectral and multichannel Image analysis. LPHD190. 7 ECTS. Once a year (2013 - 2017).
**4.** Introduction to R, MATLAB and Chemometrics. LPHD149. 3 ETCS. Total of 2 editions (2011, 2012).
**5.** Advanced MATLAB for multivariate data analysis. LPHD169. 3 ECTS. Once a year (2012 - 2015).
**6.** International school of Chemometrics. 14 ECTS. Once a year (2020 - )

**- International short courses:**

**1.** Series of seminars in Multivariate Data Analysis. During the whole year 2012. A total of 11 seminars organized. 10 hours each.
**2.** Environmental Pollution and Toxicology. Chemometrics Applied to Environmental Analysis. November 2007 University of Basque Country, Spain. 10 hours.
**3.** Multivariate Analysis of environmental datasets. PCA and first steps in MATLAB® and PLS-Toolbox®. December 2009. Universidade do Porto, Portugal. 18 hours.
**4.** Curve Resolution Methods for modeling and controlling kinetic reactions. March 2009. University of Modena, Italy. 4 hours.
**5.** Hyperspectral Analysis. Fundamentals and applications. February 2011 Universidad de Córdoba, Spain. 12 hours
**6.** Three-way and Multi-way analysis. October 2011. University of Modena, Italy. 10 hours.
**7.** Hyperspectral Imaging Analysis. 22nd-30th November 2012. University of Basque Country (Leioa). UPV/EHU. 45 hours.
**8.** Introduction to MATLAB. 13th-15th March 2013. University of Milan (Italy). 20 hours. 10 students.
**9.** Hyperspectral Imaging Analysis and MATLAB. 7th-8th January 2014. University of Foggia (Italy). 11 hours.
**10.** Hyperspectral Image Analysis. 17th-21st of March, 2014. Federal University of Pernambuco (Brazil). 35 hours. 30 students
**11.** Introduction to MATLAB. 20/07 - 24/07/2015. II Escola de Inverno de Quimiometria. Campinas (Brazil). 8 hours. 40 students.
**12.** Near Infrared hyperspectral imaging. 17$^{th}$ October 2015. In 17$^{th}$ International Conference on Near Infrared Spectroscopy (NIR 2015, Brazil) Foz do Iguassu, Brazil. 6 hours. 15 students.
**13.** Hyperspectral Image Analysis. 14th-17th/2015. VIVITIS department. University of La Rioja (Spain). 35 hours. 10 students.
**14.** Hyperspectral Image Analysis. 11th - 12th/2016. University of Modena e Reggio Emilia (Italy). 8 hours. 20 students.
**15.** Introduction to Matlab and Hyperspectral Image Analysis. University of Ghent. May 9-13, 2016. Ghent (Belgium). 30 hours. 10 students.
**16.** Hyperspectral Image Analysis. University of Brasilia. September 1-2, 2016. Brasilia (Brazil). 15 hours. 10 students.
**17.** Introduction to Matlab for Multivariate Data Analysis. September 2016. Federal University of Pernambuco (Brazil). 60 hours. 30 students.
**18.** Applications and treatment of NIR-HSI. September 18, 2016. In 18 Encontro Nacional de Química Analitica. 18-21 September 2016. Florianópolis (Brazil). One hour. Workshop.
**19.** Introducción a la Quimiometría. November 28 - December 01, 2016. Universidad de Costa Rica. San José (Costa Rica). 30 hours. 30 students.

**20.** Introducción a la visión artificial e imágenes hiperespectrales aplicadas a la agricultura. June 20 -23, 2017. XI CÁTEDRA INTERNACIONAL DE INGENIERÍA 2017. Universidad Nacional de Colombia (Colombia). 32 hours. 60 students.
**21.** Multivariate Calibration: Theory and practice. January - June, 2017. Federal University of Pernambuco (Brazil). 60 hours. 15 students.
**22.** Análisis y tratamiento de imágenes hiperespectrales en la industria alimentaria. V seminario en tópicos especiales de ingeniería. Universidad Nacional de Trujillo, Peru. 7th and 8th of August, 2017.
**23.** Introduction to Matlab for Multivariate Data Analysis. September 2017. Federal University of Pernambuco (Brazil). 60 hours. 10 students.
**24.** Hyperspectral Image Analysis. October 2017. Ryu-Kyu University, Naha (Japan). 7 hours. 10 students.
**25.** Training in Hyperspectral Image Analysis. 20 – 24 November 2017. Embrapa Algodão. Campina Grande, Brazil. 30 hours. 30 students.
**26.** Hyperspectral Image Analysis. 23 – 25 January 2018. Belo Horizonte, Brazil. 18 hours. 15 students.
**27.** Introduction to Matlab. 29 January – 2 February 2018. Campinas, Brazil. 30 hours. 30 students.
**28.** Hyperspectral Image Analysis. 19 – 23 February 2018. Recife, Brazil. 15 students
**29.** Hyperspectral Imaging. 9 April 2018. Rotorua, New Zealand. 15 students. 6 hours.
**30.** Hyperspectral Imaging. 17 June 2018. Seattle, USA. 20 students. 20 students. 4 hours.
**31.** Imagen hiperespectral. 13 – 15 November 2018. Córdoba, Spain. 5 students. 20 hours.
**32.** Iniciación a la quimiometria. 19-23 November 2018. Sevilla, Spain. 10 students. 30 hours.
**33.** Hyperspectral Imaging. 14-18 January 2019. Gent, Belgium. 10 students. 30 hours.
**34.** Introduction to Matlab. 22 February – 22 April 2019. Litpeg. Federal University of Pernambuco, Brazil. 30 hours. 15 students.
**35.** NIR Hyperspectral Image Analysis. Workshop at ICNIRS-2019. 14 – 15 September 2019. Gold Coast, Australia. 12 hours. 25 students.
**36.** Iniciación a la imagen Hiperespectral. 20-24 January 2020. University of Concepción, Chile. 30 hours. 15 students.
**37.** Hyperspectral Imaging and Chemometrics. 3-5 February 2020. Gembleux, Belgium. 15 hours. 10 students.
**38.** Hyperspectral Imaging and Chemometrics. 10-14 February 2020. Gent, Belgium. 30 hours. 15 students.
**39.** Imagen hiperespectral. Online course for BlackSquare (Bogotá, Colombia). 30 hours. 2 students.

## Supervision (ongoing supervisions in bold):

**- MsC students:**

**1.** Mrs. Arantxa del Olmo. April - September 2012. Potential of hyperspectral imaging for measuring staling of white bread.
**2.** Mrs. Marietta Kokla. February - September 2013. Image analysis of CT-images to detect micro-thrombosis in lungs.
**3.** Mrs. Sofia Santos. February - July 2014. Deep exploration of the benefits and drawbacks of sparse-based models in NIR, Raman and Hyperspectral imaging.
**4.** Mrs. Sara Giulia Ceriani. April – July 2015. Classification of Blue Berries class III and IV using hyperspectral imaging and Chemometrics.
**5.** Mrs. Sophia Wieczorek. Hyperspectral imaging in Forensics. September 2017 – September 2018
**6.** Mrs. Ida Simonsen. Hyperspectral imaging in pharmaceutical development. April 2018 – September 2018
**7.** Jacoline van Hes. September 2019 – September 2020. NIR database creation. University of the Basque Country, Spain.
**8.** Jon Mugica Apellaniz. September 2021. Integración de fotogrametría, espectroscopia NIR, espectroscopia Raman y quimiometría en patrimonio construido. Iglesia de los Santos Emeterio y Celedonio de Goikolexea (Larrabetzu, Bizkaia).
**9.** Reaha Goyetche. September 2020 – September 2021. Chemometric strategies for the detection of microplastics in sand by Near Infrared Hyperspectral Imaging (NIR-HSI)

**- PhD students:**

**9.** Ms. Panida Pongvittayanon. Imaging tissue infiltrates, with emphasis on lipids in health and disease: contribution of quantitative assessments in companion animal care. UPV-EHU / UCPH. In preparation
**8.** Ms. Rocio Rios. Spectroscopic characterization of Andalusian vinegars. October 2015 – October 2019.
**7.** Ms. Ecem Evrim Celik. Study of the Synergy Between Free and Bound Antioxidants. June 2014 – December 14$^{th}$, 2017.

**6.** Mrs. Anna Vilhelminna Müller. Applications of Image Quantification in Veterinary Diagnostic Imaging. Medical Image Analysis. Defence made in November 13rd, 2017.
**5.** Ms. Carolina Santos Silva. Development of analytical methods using images for forensic applications. Defence made in July 2017.
**4.** Mr. Neirivaldo Cavalcante da Silva. Methods for calibration transfer and gasoline formulation. Defence made in June 2017.
**3.** Ms. Rosalba Calvini. Chemometric Tools for Food Characterization Through RGB and Hyperspectral Imaging. Defence made in June 2017.
**2.** Mr. Emanuel F. Garcia. Robotic Milking data analysis to find patterns for lameness in cows. Defence made in June 2015.
**1.** Mr. Milad Rouhi. Real-time process control methods in pharmaceutical production. Defence made in June 2015.

**- Post-doc students:**

**6.** Dr. Rocío Rios. NIR and chemometrics. September 2020 – February 2021.
**5.** Dr. Daniel Caballero. Image analysis. April 2018 – April 2020
**4.** Dr. Maider Vidal. Hyperspectral Image Analysis. January 2011 - February 2011.
**3.** Dr. Marta Bebillacqua. February - March 2015.
**2.** Dr. Saioa Elcoroaristizabal. September 2015 - June 2016.
**1.** Dr. Hamid Babamoradi. September 2012 – September 2014.

**- Visiting students from different international universities:**

**1.** Mr. Carlos Cairós: Autonomous University of Barcelona, Spain. March – June 2008.
**2.** Dr. Manel Bautista: Autonomous University of Barcelona, Spain. January2008, October 2008 - March 2009. Main topic: Hyperspectral Imaging in Pharmaceutical research.
**3.** Mrs. Maider Vidal: University of the Basque Country, Spain. September 2008 – February 2009. Main topic: Monitoring and control of Nickel bath quality by means of spectroscopy and Image analysis.
**4.** Dr. Nuno Ratola: University of Porto, Portugal. January 2009. Main topic: Pine needles as biomarkers in environmental control of pollution.
**5.** Dr. Raquel Callejón: University of Sevilla, Spain. March 2009. Main topic: Multiway methods in chromatography.
**6.** Mrs. Felicitat Franch: Autonomous University of Barcelona, Spain. September – December 2009. Main topic: Hyperspectral Imaging in pharmaceutical research.
**7.** Mrs. Ainara Gredilla: University of the Basque Country, Spain. September – December 2009. Main topic: Modelling of contaminants in sediments and water by Chromatography and Chemometrics.
**8.** Mr. Juan Rosas: Autonomous University of Barcelona, Spain. March 2010 – July 2010. Main topic: Hyperspectral Imaging in Pharmaceutical research.
**9.** Mr. Ruben Cuevas: Autonomous University of Barcelona, Spain. September 2010 – December 2010. Main topic: Hyperspectral Imaging in Pharmaceutical research.
**10.** Mrs. Cristina Fernandez Barrat: Universitat Rovira i Virgili, Tarragona, Spain. March 2011 - July 2011. Main topic: Modelling dyes degradation with PARAFAC.
**11.** Dr. Silvia Grassi: University of Milan. April - November 2012 and June - September 2013. Main topic: Monitoring different fermentation processes in beer.
**12.** Ms. Idoia Martí Aluja: University Rovira i Virgili (Tarragona, Spain). September - December 2012. Main topic: Hyperspectral imaging analysis.
**13.** Ms. Eva Borràs: University Rovira i Virgili (Tarragona, Spain). September - December 2012. Main topic: Hyperspectral imaging analysis.
**14.** Ms. Ainara López: Universidad de Navarra (Spain). October 2013. Main topic: Chemometric analysis of NIR spectra.
**15.** Mr. Guilherme Alexandrino: University of Campinas (Brazil). February – September 2014. Main topic: Hyperspectral image analysis in time series of images in Pharmaceutical research.
**16.** Mrs. Sofía Santos: University of Lisbon (Portugal). February – June 2014. Main topic: Sparse-models in hyperspectral images.
**17.** Mr. Raffaele Civelli: University of Milan (Italy). February – May 2014. Main topic: Multispectral and hyperspectral image analysis in food quality assessment.
**18.** Ms. Martyna Jackowska: University of Wrocław (Poland). June 5th - July 31st, 2014. Main topic: Multi-way models in excitation emission landscapes.

**19.** Dr. Fernando Ortega Ojeda: University of Alcalá (Madrid). August 27th - September 24th, 2014. Main topic: Hyperspectral analysis in forensics.
**20.** Ms. Rosalba Calvini: University of Reggio Emilia (Italy). September – December 2014. Main topic: Hyperspectral Image analysis.
**21.** Mr. Leandro de Moura: University of Pernanbuco (Brazil). October – December 2014. Main topic: Homogeneity distribution in surfaces with image analysis.
**22.** Mrs. Sara Giulia Libera Ceriani: University of Milan (Italy).
**23.** Mr. Daniel Caballero: University of Badajoz (Spain).
**24.** Mrs. Jessica Perez: University of the Basque Country (Spain). September – December 2015.
**25.** Dr. Saioa Elcoroaristizabal: University of Basque Country (Spain). September 2015 – June 2016.
**26.** Dr. Mario Li Vigni: University of Modena and Reggio Emilia (Italy). February 2016.
**27.** Mrs. Carolina Santos: Federal University of Pernambuco (Brazil). January 2016 – January 2017.
**28.** Mrs. Juliana Balage: University of Sao Paolo (Brazil). April – August 2016.
**29.** Mrs. Sandra Munera: University of Valencia (Spain). May – July 2016.
**30.** Mr. Neirivaldo Cavalcante: Federal University of Pernambuco (Brazil). May 2016 – May 2017.
**31.** Mr. Félix Zapata Arráez: University of Alcalá de Henares (Spain). September - December 2016.
**32.** Mr. Mudassir Chaudry: University of Foggia (Italy). November 2017 – January 2018. August 2018 – November 2019.
**33.** Mrs. Irina Torres: University of Córdoba (Spain). July 2018 – October 2018.
**36.** Mrs. Sahar Rahir: University of Shiraz (Iran). November 2018 – June 2019.
**37**. Mrs. Inal Bakhytkyzy: Gdansk University (Poland). September – December 2019.
**38.** Mr. Yoshinari Izumikawa: Riu Kyu University (Japan). November – December 2019.
**39.** Dr. Giacomo Squeo: University of Bari (Italy). September 2020 – February 2021.
**40.** Mrs. Maria del Mar Giró: Institut de Recerca i Tecnologies Agroalimentàries. IRTA (Girona, Spain). October – November 2021.
**41.** Dr. Vitor Hugo Silva: Aarhus University (Denmark). November 2021.
42. Dr. Anders Krogh Mortensen: Aarhus University (Denmark). November 2021 – March 2022.

## Official duties / Managerial experience:

- Editor of the book "Hyperspectral Imaging" for Elsevier. Published October 1st, 2019. Paperback ISBN: 9780444639776; eBook ISBN: 9780444639783

- *Guest editor:* "Chemometrics: Tutorials in advanced data analysis methods". A series of tutorials published in Analytical Methods Journal.

- *Editor-in-chief:* MethodsX: Editor-in-chief of the Chemistry section. From January 2016 until January 2017.

- Editorial advisory board: Chemometrics and Intelligent Laboratory Systems; Analytica Chimica Acta; Journal of Spectral Imaging; Chemosensors; Journal of Pharmaceutical Analysis; American Journal of Analytical Chemistry; ISRN Medicinal Chemistry; European Pharmaceutical Review.

- Common reviewer of +25 peer-review international journals: Nature Group, Analytica Chimica Acta, Chemometrics and Intelligent Laboratory Systems, Talanta, Analytical Chemistry, Journal of Chromatography A, Journal of Chromatography B, Analytical Methods, RSC Advances, European Journal of Pharmaceutical Sciences, Environmental Science and Pollution Research, Computers and Electronics in Agriculture, International Journal of Pharmaceutics, Remote Sensing, Sensors & Actuators: B. Chemical, Americal Journal of Analytical Chemistry, Analyst, Journal of Chemometrics, Environmental Pollution, Food Chemistry, Journal of Agricultural and Food Chemistry, Journal of Pharmacy and Pharmacology, Sensors, Biosystems Engineering, Food Analytical Methods, AAPS PharmSciTech, etc.

- Evaluator in different international research foundations: Polytechnic University of Torino, Italy; Qatar National Research Foundation; Portugal National Research Foundation; Italy National Research Foundation; The Netherlands National Research Foundation.

- Scientific advisory board:
1. 2nd International Conference on Food and biosystems engineering (28th – 31st of May, 2015. Greece)
2. 17th International Conference on Near Infrared Spectroscopy (18th -23th of October, 2015. Brazil)

3. 18th International Conference on Near Infrared Spectroscopy (11th -15th of June, 2017. Copenhagen, Denmark).
4. International Association of Spectral Imaging (from June 2018).
5. 19th International Conference on Near Infrared Spectroscopy (15th -20th of September, 2019. Copenhagen, Denmark).

- Organizing committee member of the 18th International Conference on Near Infrared Spectroscopy, Copenhagen, Denmark. 10-15 June, 2017.

- Chairman of the International Association of Spectral Imaging Conference, IASIM-2020. To be held in Denmark. 5 – 8 July 2020.

- Membership of other research groups as collaborator: Grupo de derivados de la uva, AGR167. Leaded by Dr. M. del Carmen Garcia Parrilla. Sevilla. Spain.

- Member of the America Nano Society and the Spanish Chemometrics and Qualimetrics Society.

- Member of the Educational Group of The International Council for Near Infrared Spectroscopy.

- Member of PhD Thesis committees:

**1.** Mrs. Patricia Navarro."Metodología para el análisis y validación de PAHs y metales en sedimentos y biota." University of the Basque Country. Leioa, Spain. 2008, July 11th. Thesis committee.
**2.** Mrs. Ailette Prieto."Desarrollo de métodos analíticos de rutina para la determinación simultánea de contaminantes prioritarios en muestras medioambientales."University of the Basque Country. Leioa. International External Reviewer.
**3.** Mr. Juan Fernández Novales."Determinación de parámetros de calidad de uvas, mostos en fermentación y vinos mediante espectroscopía Ultravioleta-Visible y de Infrarrojo Cercano". University of Córdoba, Spain. International External Reviewer.
**4.** Mr. Juan Zurriarain."Aplicación de la Quimiometría para el aprovechamiento analítico de reactivos generales. Revisión de la incertidumbre instrumental y del límite de detección multivariable". University of the Basque Country. San Sebastian, Spain. 2010, July 17th. Thesis committee.
**5.** Mrs. Maider Vidal. "New methods for the analytical control of a Nickel electroplating bath. Application of chemometric techniques". University of the Basque Country. San Sebastian, Spain. 2010, July 27th. Thesis committee.
**6.** Mrs. Paulina de la Mata. Aplicabilidad de la cromatografía líquida y espectrometría vibracional para desarrollar modelos multivariantes para la detección y cuantificación de aceite de oliva en mezclas de aceites vegetales". Thesis committee. Granada (Spain), 2011.
**7.** Mrs. Ainara Gredilla. "Metals and metalloids in estuaries: Development of Analytical Tools for Pollution Monitoring". University of Basque Country. Thesis committee.
**8.** Mrs. Maria Ramos Payan. "Microextracción en fase líquida usando membranas líquidas soportadas sobre fibras huecas (HF-LPME, Hollow Fiber Based Liquid Phase Microextraction) como procedimiento de preconcentración y limpieza para la determinación de fármacos en matrices biológicas y ambientales". Sevilla, Spain. October 2011. Thesis committee.
**9.** Mrs. Cecilia Riccioli. "Detección y cuantificación de la especie en harinas proteicas de origen animal mediante el uso de sensores hiperspectrales". University of Córdoba. 2011. Thesis committee.
**10.** Mr. José Antonio Carrero. "Evaluación del impacto del tráfico rodado en suelos y plantas de margen de carretera". University of the Basque Country. Leioa, Spain. November 2011. External evaluation committee.
**11.** Mr. Asier Vallejo. Development of analytical methods for the determination of alkylphenols and estrogens in environmental samples". University of Basque Country (Spain). June, 2011. External evaluation committee
**12.** Mrs. Cristina Fernández. "Analytical Methodologies based on Chemometrics to optimize the photodegradation of dyes". Universitat Rovira i Virgili. Tarragona, Spain. January, 2012. Thesis committee.
**13.** Mrs. Cristina Ruiz. "Autentificación de aceites vegetales mediante el empleo de cromatografía de gases y espectrometría de masas. Cuantificación de aceite de oliva". Thesis committee.
**14.** Mrs. Virginia González Caballero. "Determinación no destructiva de parámetros de calidad en uvas, racimos y mostos mediante Espectroscopía de Reflectancia en el Infrarojo Cercano". University of Córdoba, Spain. June, 2012, Thesis committee.

**15.** Mr. Sergio Garmón. 'Phenolic type markers for fruits: Development of separation and identification techniques using HPLC-MS/MS and applied chemometric tools for the authentication of food analysis'. University of Basque Country, 2012.
**16.** Mrs. Cristina Úbeda. "*Caracterización química y sensorial de condimentos de fruta obtenidos mediante doble fermentación*". University of Sevilla, Spain. External evaluation committee.
**17.** Mrs. Elisa Salvatore. "*Multiset and Multi-way Approaches in Food Authentication"*. Univerista degli Studi di Modena e Reggio Emilia, italy. External evaluation committee.
**18.** Mrs. Ana Belén Cabezas Serrano. "*Estrategias dirigidas a retrasar el pardeamineto enzimático en productos destinados a la IV gama: alcachofas y patatas*". University of Córdoba, Spain. 2013. External evaluation committee.
**19.** Mr. Eduardo Rojas. "*Control no destructivo e in-situ de productos y procesos en la industria del cerdo ibérico usando sensores espectrales de infrarojo cercano*". University of Córdoba, Spain. 2013. Thesis committee (reserve).
**20.** Ms. Nagore Prieto Taboada. "Development and application of innovative analysis methodologies on the evaluation of the state of conservation of construction materials in urban-industrial buildings". University of the Basque Country. Leioa, Spain. 2013. External evaluation committee.
**21.** Ms. Maria Guix Noguera. "Nano/micro materials and motors in (bio)sensing applications". Autonomous University of Barcelona. July, 2013. External evaluation committee.
**23.** Mr. Josu Trebolazabala Domingo. "Development of new processes and analytical methodologies for efficient and fast analysis of foodstuffs foccused on the culinary field". University of Basque Country. July, 2013. External evaluation committee.
**24.** Ms. Jone Omar. "New analytical strategies for the characterization of bioactive compounds". University of Basque Country. 2013. External evaluation committee.
**25.** Ms. Idoia Martí. "Analysis of polymerisation/aggregation processes by NIR chemical imaging and FTIR spectroscopy". University Rovira i Virgili. Tarragona, Spain. September, 2013. Thesis committee.
**26.** Ms. Lotte Bøge Lyndgaard. "Applications of Raman Spectroscopy and Multivariate Data Analysis in Food and Pharmaceutical Sciences". University of Copenhagen, Denmark. December, 2013. Thesis committee (chairman).
**27.** Mrs. Chiara Vergani. "Spatial and temporal dynamics of root reinforcement in alpine forests". University of Milan, Italy. February 2014. Thesis committee.
**28.** Mrs. Elisa Bedin. "The determinants of food security in a globalized world: Evaluation of the effects of trade liberalization with a synthetic control approach". University of Milan, Italy. February 2014. Thesis committee.
**29.** Mr. Riccardo Roggeri. "Sviluppo di una piattaforma IT per la valutazione e valorizzazione della proprietà industriale". University of Milan, Italy. February 2014. Thesis committee.
**30.** Mrs. Giorgia Cocolo. "Assessment of different solid-liquid separation techniques for livestock slurry". University of Milan, Italy. February 2014. Thesis committee.
**31.** Mr. Lamy Hamed. "Application of Nuclear Techniques in Soil-plant-water relationships". University of Milan, Italy. February 2014. Thesis committee.
**32.** Mrs. Silvia Grassi. "Microbial food fermentations: innovative approach using infrared spectroscopy". University of Milan, Italy. February 2014. Thesis committee.
**33.** Mrs. Nikole Arrieta Irazabal. "The study of an unusual temperate latitude beachrock formation. Characterization of the Azkorri beach and Tunelboka cove locations". University of Basque Country, Spain. June 2014. External evaluation committee.
**34.** Mrs. Maria Ángeles Fernandez de la Ossa. "Electrophoretic and imaging approaches for explosive detection". University of Alacá de Henares, Spain. June 2014. Thesis commitee.
**35.** Mr. Raffaele Civelli: "Setting up of simplified optical tools for the evaluation of fruit and vegetables". University of Milan, Italy. December 2014. International member of the Thesis committee.
**36.** Mr. Alberto Villar: "Chemometric methods applied to the optimization of calibration of Vis-NIR sensor systems for real time fluids monitoring". University of Basque Country, Spain. November 2014. Thesis committee.
**37.** Ms. Maria Isabel López Vilardell: "Development and validation of multivariate qualitative methodologies in the food field". University of Tarragona, Spain. December 2014. External evaluation committee.
**38.** Ms. Delia Lorente Garrido: "Automatic early detection of decay in citrus fruits using optical technologies and machine learning techniques". University of Valencia, Spain. 2015. Thesis committee (chairman).
**39.** Ms. Ane Bordagarai: "Development of procedures for the triazole fungicides determination in fruits and liquid samples using microextraction thecniques and chromatographic separation". University of Basque Country, Spain. 2015 Thesis committee.

**40.** Ms. Saioa Elcoroaristizabal: "Measurement of PAHs in ambient air by fluorescence spectroscopic techniques". University of Basque Country, Spain. 3rd of July, 2015. Thesis committee.
**42.** Ms. Eva Borràs. "Instrumental and Chemometric Methodologies to assess Sensory Quality of Mediterranean Food". Universitat Rovira I Virgili, Tarragona, Spain. May 2016. External evaluation committee.
**43.** Ms. Jessica Pérez: Development of dispersive liquid-liquid microextraction-based analytical methodologies. Application to real samples. University of Basque Country, Spain. June 2016. External evaluation committee.
**44.** Ms. Ainara López. "Near Infrared Spectroscopy and Hyperspectral Imaging for non-destructive quality inspection of potatoes". University of navarra, Spain. June, 2016. Thesis committee.
**45.** Ms. Livia Rodrígues e Brito. "Desenvolvimento de métodos analíticos não-destrutivos empregando imagens hiperespectrais para aplicações forenses". Federal University of Pernambuco, Brazil. September, 2016. MsC. Committee.
**46.** Mrs. Cláudia Andreia Teixeira dos Santos. "Development of new methodologies based on vibrational spectroscopy and chemometrics for wine characterization and classification". University of Porto, Portugal. 2017. External Evaluation Committee.
**47.** Mr. Thomaz Edson Veloso da Silva. "Educometrics: From Theory to Application". Federal University of Ceará. Fortaleza. Brazil. December 7th, 2017. Committee member.
**48.** Mrs. Patrizia Firmani. "Advanced chemometric approaches for the verification of contaminations, adulterations and counterfeits". University of Rome-Sapienza. Italy. 2019. External Evaluation Committee.
**49.** Mrs. Daphne Chiara Antônio: "Use of multiway chemometric tools for honey and coffee analysis". Federal University of Minas Gerais. Brazil. 2021. Committee member.
**50.** Mr. Michael Drew Sorochan Armstrong: "Decomposition and Feature Selection of Comprehensive 2-Dimensional Gas Chromatography - Time-of-Flight Mass Spectrometry (GC×GC-TOFMS) Data". University of Alberta. Canada. 2021. Committee member.
**51.** Mr. Sebastian Bech-Terkilsen: "The meaning of life for lactic acid bacteria. How to measure life, stress and death in production and application". University of Copenhagen. 2021. Committee member.

## Projects

**1.** Development of Chemometric Methods of Multivariate Calibration for the application to the Kinetic Analysis. October, 2001 – October, 2004. Supported by the Catalan Government. Main Researcher: Prof. Santiago Maspoch Andrés. Role: PhD student.

**2.** Chemical Analysis and Statistical Modelling of the Presence of Organic Pollutants in Water and Sediments from a river of Bizkaia, Basque Country.February, 2002 – September, 2002. Supported by the Department of Education, University and Research of the Basque Country. Main Researcher: Prof. Luis Ángel Fernández Cuadrado. Role: Research assistant.

**3.** Development and Applications of Chemometric Methods to the Process Analytical Technologies. December, 2004 – December, 2007. Ministerio de Ciencia y Tecnología. Main Researcher: Prof. Jordi Coello Bonilla, Professor at Autonomous University of Barcelona, Spain. Role: PhD student.

**4.** Development of a hyperspectral NIR-IMAGE system and application of multidimensional chemometric methods. REF: CTQ2007-62528/BQU. October, 2007 – October, 2010. Supported by Ministerio de Educación y Ciencia de España. Main researcher: Prof. Jordi Coello Bonilla. Role: PhD student.

**5.** New methodologies for monitoring and controlling fermentation processes in real time using tensor models. December 2007-November 2009. Department of Food Science. University of Copenhagen. Main Researcher: José Manuel Amigo. Supported by the Danish Council for Technology and Production Sciences. Role: Principal Investigator. 1306359 DKK.

**6.** Study of the mechanism of GBV-C/HGV in lipids and its possible implication in the inhibition process of HIV. REF: CTQ2009-13969-C02-02. January 2010 - December 2012. Supported by Spanish Government. Main researcher: M. Asunción Alsina Esteller. Budget: 96,800 Euros. Role: Collaborator.

**7.** CHANCE. Chemometrics Analysis Center. January 2011 - December 2014. Supported by the University of Copenhagen, Denmark. Main researcher: Rasmus Bro. Role: Main supervisor, Associate Professor. 10000000 DKK.

**8.** INNOSORT. January 2013 - December 2016. Supported by Danish Government. Main researcher: Nils Henning Nilsson. Role: Work Package leader. 1020000 DKK.

**9.** Caracterización espectroscópica y sensométrica de vinagres andaluces con denominación de origen. Supported by Junta de Andalucía, Spain. P.I.: Dr. Raquel Callejón Fernández. 800000 euros. Role: PhD supervisor.

**10.** Hyperspectral Near Infrared in Dairy Process Control (HNIR-PDC). Supported by Danish National Advanced Technology Foundation. Denmark. Main researcher: Dr. Hamid Babamoradi. Two years. Amount: 1.020.976,00 DKK. Role: Research assistant.

**11.** Identificación de componentes de artefactos explosivos (IEDs) en huellas palmares utilizando técnicas de generación de imágenes hiperespectrales y de espectroscopia Raman". Ref: CCG2013/EXP-021. 02/12/2013 - 01/12/2014. Total amount: 6000 Euros. Main researcher: Dr. Carmen García Ruiz. Role: Research assistant.

**12.** Desenvolvimento de metodologias analíticas inovadoras e robustas empregando imagens hiperespectrais e quimiometria. Process number: 400264/2014-5 (CNPq). CHAMADADE PROJETOS
MEC/MCTI/CAPES/CNPQ/FAPS – BOLSA PESQUISADOR VISITANTE ESPECIAL - PVE 2014. Main researcher: Dr. José Manuel Amigo. Role: Principal Investigator.

**13.** Núcleo de Estudos em Química Forense - NEQUIFOR. Edital 25/2014 – Programa Ciências Forenses. Main researcher: Dr. Ingrid Weber. Total amount: R$ 209.000,00. Role: Work package leader.

**14.** Sviluppo di una metodica analitica immediata ed efficiente per la determinazione di micotossine nel latte mediante l'utilizzo di tecniche spettroscopiche e chemiometriche. Main researcher: Prof. Marina Cocchi. Role: Research assistant.

**15.** Multiscale multispectral Chemometrics micro-imaging for application in food and food science. French-Danish Research Collaboration Program. 3000 euros. Principal investigators: Prof. Cyril Ruckebusch and Dr. José Manuel Amigo. Role: Principal Investigator.

**16.** Establishment of algorithms/models for assessing psoriasis target lesions**.** Collaboration agreement between KU and LEO Pharma A/S. Budget: 350000 DKK. 2015 – 2016.

**17.** Soft Matter Analysis enabling food induSTRy 4.0. SMARTs. 1st September 2017 – 31st August 2020. PI: Maria Barmar. Granted by the Innovation Fund, Denmark. Budget: 9501800 DKK.

**18.** Contribution of the Raman spectroscopy to the exploration of Mars and Martian Moons: ExoMars, Mars 2020 and MMX missions (RamOnMars). 2020 – 2023. Granted by MINISTERIO DE ECONOMIA, INDUSTRIA Y COMPETITIVIDAD of Spain. PI: Fernando Rull Perez. Budget: 1.740.300,00 Euros.

**19.** Development of mortar resistant to environmental pollution and biodegradation and of innovative sustainable systems for the cleaning and restoration of Built Heritage (DEMORA). PID2020-113391GB-I00. 2021 – 2024. Granted by MINISTERIO DE CIENCIA E INNOVACIÓN of Spain. PI: Gorka Arana. Budget: 195.600,00 Euros.

## Contracts with Private Companies and Public Entities

**1.** Data mining en imagen hiperespectral y multiespectral 01/05/2020 30/05/2020. Contractor: BLACK SQUARE S.A.S, Colombia (VAT no. 900.885.377-3). Budget: 2.117,65 Euros.
**2.** International School of Chemometrics Online 08/10/2020 20/11/2020. Contractor: University of Copenhagen (UCPH), Denmark (VAT no. DK 29979812). Budget: 11.290,00 Euros.
**3.** Imagen Hiperespectral Tekniker 19/05/2021 21/05/2021. Contractor: Fundación Tekniker, Spain (VAT no. G20545729). Budget: 4.176,47 Euros.
**4.** Análisis de datos industriales 01/05/2021 30/06/2021. Contractor: ADVANCED OPTICAL TECHNOLOGIES S.L., Spain (VAT no. B95949673). Budget: 1.500,00 Euros.

**5.** Análisis de datos hiperespectrales 01/04/2021 31/12/2021. Contractor: FORESTAL ARAUCO S.A., Chile (VAT no. 85805200-9). Budget: 7.000,00 Euros.
**6.** Analisis de datos hiperespectrales 01/06/2021 31/01/2022. Contractor: BLACK SQUARE S.A.S, Colombia (VAT no. 900.885.377-3). Budget: 16.940,00 Euros.
**7.** Consultoria en Inteligencia Artificial e Imagen Hiperespectral 15/11/2021 15/12/2021. Contractor: University of Copenhagen (UCHP), Denmark (VAT no. DK 29979812). Budget: 6.647,06 Euros.

## Bibliometric indexes (February 2022):

**H-index:** 41 (Google Scholar), 35 (Scopus)
**Total citations:** 4979 (Google Scholar), 3748 (Scopus)
**Publications:** +170
**Peer-reviewed papers in indexed journals:** 132
**Books:** 4
**Book chapters:** 16

## Peer-reviewed papers published in indexed scientific journals

***Accepted***

**134.** Tooth whitening, oxidation or reduction? Study of physicochemical alterations in bovine enamel using Synchrotron-based Micro-FTIR. Clara Babot-Marquillas, Maria-Jesús Sánchez-Martín, Jose Manuel Amigo, Ibraheem Yousef, Iris H.Valido, Roberto Boada and Manuel Valiente. Dental Materials (Accepted February 2022).

**133.** A Combination of Two Synchrotron Radiation-Based Techniques and Chemometrics to Study an Enhanced Natural Remineralization of Enamel. Diez-Garcia, Sandra; Sanchez-Martin, Maria-Jesus; Amigo, Jose; Valiente, Manuel. Analytical Chemistry (Accepted February 2022).

**132.** Assessment of macronutrients and alpha-galactosides of texturized vegetable proteins by near infrared hyperspectral imaging. Giacomo Squeo, Davide De Angelis, Carmine Summo, Antonella Pasqualone, Francesco Caponio, José Manuel Amigo. Journal of Food Composition and Analysis (Accepted February 2022).

***2022 (-)***

**131.** Distributional homogeneity and penetration depth assessment of antibiotic added by surface coating to pellets with Mid Infrared Imaging and multivariate curve resolution. Camila Y. Bastidas, Rosario del P. Castillo, José Manuel Amigo, Carlos von Plessing, José Troncoso. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 271 (2022) 120864.

***2021 (10)***

**130.** Data mining to probe polymer phase transitions by In-situ thermal analysis coupled to Small and Wide-angle X-ray scattering combined with Raman spectroscopy. Sarah Saidi, Giuseppe Portale, Wim Bras, Alessandro Longo, José Manuel Amigo, David Chapron, Patrice Bourson, Daniel Hermida-Merino. Polymers 2021, 13(23), 4203.

**129.** VinegarScan: A Computer Tool Based on Ultraviolet Spectroscopy for A Rapid Authentication of Wine Vinegars. Rocío Ríos-Reina, Daniel Caballero, Silvana M. Azcarate,Diego L. García-González, Raquel M. Callejón, José M. Amigo. Chemosensors 9:11 (2021) 296.

**128.** Feasibility of a rapid and non-destructive methodology for the study and discrimination of pine nuts using near-infrared hyperspectral analysis and chemometrics. R. Ríos-Reina, R.M. Callejón, J.M. Amigo. Food Control 130 (2021) 108365.

**127.** Data Handling in Data Fusion: Methodologies and Applications. S. Azcarate, R. Ríos Reina, J.M. Amigo, H. Goichoechea. TrAC – Trends in Analytical Chemistry 143 ( 2021) 116355.

**126.** Data Mining, Machine Learning, Deep Learning, Chemometrics. Definitions, Common Points and Trends (Spoiler Alert: Validate Your Models!). J.M. Amigo. Brazilian Journal of Analytical Chemistry 8:32 (2021) 22-38.

**125.** Staling of white wheat bread crumb and effect of maltogenic alpha-amylases. Part III: Spatial evolution of bread staling with time by Near Infrared Hyperspectral Imaging. José Manuel Amigo, Arantxa del Olmo, Merette Møller, Henrik Lundkvist. Food Chemistry 353 (2021) 129478.

**124.** Shelf-life estimation and kinetic degradation modeling of chia seeds (*Salvia hispanica*) using principal component analysis based on NIR-hyperspectral imaging. J.P. Cruz-Tirado, Marciano Oliveira, Milton de Jesus Filho, Helena Teixeira Godoy, José Manuel Amigo, Douglas Fernandes Barbin. Food Control 123 (2021) 107777.

**123.** Near infrared hyperspectral imaging and spectral unmixing methods for evaluation of fiber distribution in enriched pasta. Amanda Badaró, José Manuel Amigo, José Blasco, Nuria Aleixos, Amanda Ferreira, Maria Teresa Clerici, Douglas Barbín. Food Chemistry 343 (2021) 128517.

**122.** A Single Model to Monitor Multistep Craft Beer Manufacturing using Near Infrared Spectroscopy and Chemometrics. Leandro França, Silvia Grassi, Maria Fernanda Pimentel, José Manuel Amigo. Food and Bioproducts Processing 126 (2021) 95-103.

**121.** Near Infrared Hyperspectral Imaging as a tool for quantifying atmospheric carbonaceous aerosols. S. Elcoroaristizabal, J.M. Amigo. Microchemical Journal 160 A (2021) 105619.

***2020 (4)***

**120.** Classification and quantification of microplastic (< 100 µm) using FPA-FTIR imaging system and machine learning. Vitor Hugo da Silva, Fionn Murphy, Jose Manuel Amigo, Colin Andrew Stedmon, and Jakob Strand. Analytical Chemistry 92:20 (2020) 13724-13733.

**119.** Feasibility study for the surface prediction and mapping of phytonutrients in minimally processed rocket leaves (Diplotaxis tenuifolia) during storage by hyperspectral imaging. Muahmmad Chaudhry, Maria L. Amodio, José M. Amigo Rubio, Maria L. V. de Chiara, Farahmand Babellahi, Giancarlo Colelli. Computers and Electronics in Agriculture 175 (2020) 105575.

**118.** Detection and Identification of Cannabis sativa L. using Near Infrared Hyperspectral Imaging and machine learning methods. A feasibility study. José F. Q. Pereira, Maria Fernanda Pimentel, José Manuel Amigo, Ricardo S. Honorato. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 237 (2020) 118385.
**117.** Fingerprinting of Doppler audio signals from the common carotid artery. Anna Mueller, José Amigo, Nicoline Wichmann, Frederik B. Witschas, Fintan McEvoy. Scientific Reports 10 (2020) 2414.

***2019 (7)***
**116.** Staling of white wheat bread crumb and effect of maltogenic α-amylases. Part 2: Monitoring the staling process by using near infrared spectroscopy and chemometrics. J.M. Amigo, A. del Olmo, M. Møller, H. Lundkvist. Food Chemistry 297 (2019) 124946
**115.** Application of hierarchical classification models and reliability estimation by bootstrapping, for authentication and discrimination of wine vinegars by UV-vis spectroscopy. R. Ríos-Reina, S.M. Azcarate, J. Camiña, R.M. Callejón, J.M. Amigo. Chemometrics and Intelligent Laboratory Systems 191 (2019) 42-53
**114.** Use of hyperspectral transmittance imaging to evaluate the internal quality of nectarines. Sandra Munera, Nuria Aleixos, Pau Talens, Sergio Cubero, Jose Blasco, Jose Manuel Amigo. Byosistems Engineering 182 (2019) 54-64
**113.** Data fusion approaches in spectroscopic characterization and classification of PDO wine vinegars. R. Ríos-Reina, R.M. Callejón, F. Savorani, J.M. Amigo, M. Cocchi. Talanta 198 (2019) 560-572
**112.** NIR-Based Octane Rating Simulator for Use in Gasoline Compounding Processes. N. Cavalcante da Silva, A.R. Massa, D. Domingos, J.M. Amigo, M. das Virgens Rebouças, C. Pasquini, M.F. Pimentel. Fuel 243 (2019) 381-389
**111.** Application of hyperspectral imaging and chemometrics for classifying plastics with brominated flame retardans. D. Caballero, M. Bevilacqua, J.M. Amigo. Journal of Spectral Imaging 8, a1 (2019) 1-16
**110.** Interactions of Dietary Fiber Bound Antioxidants with Hydroxycinnamic and Hydroxybenzoic Acids in Aqueous and Liposome Media. E.E. Celik, J.M. Amigo, M.L. Andersen, V. Gökmen. Food Chemistry 278 (2019) 294-304

***2018 (15)***
**109.** NIR Hyperspectral images for identification of gunshot residue for tagged ammunition. M. Albino, M. Talhavini, M.F. Pimentel, J.M. Amigo, C. Pasquini, S.A. Junior, I.T. Weber. Analytical Methods 10 (2018) 4711-4717
**108.** Evaluation and assessment of homogeneity in images. Part 2: Homogeneity assessment on single channel non-binary images. Blending end-point detection as an example. N.C. Da Silva, L. de Moura, J.M. Amigo, M. Bautista, M.F. Pimentel. Chemometrics and Intelligent Laboratory Systems 180 (2018) 15-25
**107.** Chemometrics Approaches for document dating: Handling paper variability. C. Santos, M.F. Pimentel, J.M. Amigo, C. Garcia-Ruiz, F. Ortega-Ojeda. Analytica Chimica Acta 1031 (2018) 28-37
**106.** Comparison of different image analysis algorithms on MRI to predict physicochemical and sensory attributes of loin. D. Caballero, A. Caro, A. Dahl, B. Ersbøll, J.M. Amigo, M. Pérez, T. Antequera. Chemometrics and Intelligent Laboratory Systems 180 (2018) 54-63
**105.** Hyperspectral imaging and multivariate accelerated shelf life testing (MASLT) approach for determining shelf life of rocket leaves. M.M.A. Chaudhry, M.L. Amodio, F. Babellahi, M.L.V. de Chiara, J.M. Amigo, G. Colelli. Journal of Food Engineering 238 (2018) 122-133.
**104.** Shear force analysis by core location in Logissimus steaks from Nellore cattle using hyperspectral images. A feasibility study. J.M. Balage, J.M. Amigo, D.S. Antonelo, M.R. Mazon, S. da Luz e Silva. Meat Science 143 (2018) 30-38
**103.** Interactions of coffee and bread crust melanoidins with hydroxycinnamic and hydroxybenzoic acids in aqueous radical environment. E.E. Celik, J.M. Amigo, M.L. Andersen, V. Gökmen. Food Research International 108 (2018) 286-294
**102.** Nir spectroscopy and chemometrics for the typification of spanish wine vinegars with protected designation of origin. R. Rios-Reina, R.M. Callejón-Fernández, D.L. García-González, J.M. Amigo. Food Control 89 (2018) 108-116
**101.** Rheology and microstructure of low-fat yoghurt produced with whey protein microparticles as fat replacer. I. Celigueta Torres, J.M. Amigo, J.C. Knudsen, A. Tolkach, B. Mikkelsen, R. Ipsen. International Dairy Journal 81 (2018) 62-71
**100.** Analysis of MRI by fractals for prediction of sensory attributes: A case study in loin. D. Caballero, T. Antequera, A. Caro, J.M. Amigo, B.K. Ersboll, A.B. Dahl, T. Perez-Palacios. Journal of Food Engineering 227 (2018) 1-10.
**099.** Sampling methods for the study of volatile profile of PDO wine vinegars. A comparison using multivariate data analysis. Rocío Ríos-Reina, M Lourdes Morales, Diego L. García-González, José M. Amigo, Raquel M. Callejón. Food Research International 105 (2018) 880-896
**098.** HYPER-Tools. A graphical user-friendly interface for Hyperspectral Image Analysis. N. Mobaraki, J.M. Amigo. Chemometrics and Intelligent Laboratory Systems 172 (2018) 174-187.
**097.** Multi-spectral imaging for the estimation of shooting distances. F. Zapata, M. López-López, J.M. Amigo, C. García-Ruíz. Forensic Science International 282 (2018) 80-85

**096.** Behaviour of Trolox with macromolecule-bound antioxidants in aqueous medium: Inhibition of auto-regeneration mechanism. E. E. Çelik, J. M. Amigo, V. Gökmen. Food Chemistry 243 (2018) 428-434
**095.** Potential of VIS-NIR hyperspectral imaging and chemometric methods to identify similar cultivars of nectarine. Sandra Munera, Jose Manuel Amigo, Nuria Aleixos, Pau Talens, Sergio Cubero, José Blasco. Food Control 86 (2018) 1-10

***2017 (15)***
**094.** Pulmonar vasculature in dogs assessed by 3D-fractal analysis and chemometrics. A.V. Müller, C.B. Marschner, A.T. Kristensen, B. Wiinberg, A.F. Sato, J.M. Amigo, F.J. McEvoy. Veterinary Radiology and Ultrasound 58:6 (2017) 653-663
**093.** Development and validation of a method for the determination of regulated fragance allergens by HPLC-DAD and PARAFAC2. J. Pérez, S. Elcoroaristizabal, J.M. Amigo, M. Vidal. Journal of Chromatography A 1526 (2017) 82-92.
**092.** Evaluation and assessment of homogeneity in images. part 1: Unique heterogeneity percentage for binary images. Leandro de Moura, José Manuel Amigo, Carlos Cairós, Manel Bautista, Maria Fernanda Pimentel. Chemometrics and Intelligent Laboratory Systems 171 (2017) 26-39
**091.** Detecting semen stains on fabrics using near infrared hyperspectral images and multivariate models. Carolina S.Silva, Maria FernandaPimentel, José ManuelAmigo, Ricardo S.Honorato, CelioPasquini. TrAC Trends in Analytical Chemistry 95 (2017) 23-35
**090.** Texture analysis of pulmonary parenchymateous changes related to pulmonary thromboembolism in dogs - a novel approach using quantitative methods. C. B. Marschner, M. Kokla, J. M. Amigo, E. A. Rozanski, B. Wiinberg, F. J. McEvoy. BMC Veterinary Research 13:1 (2017) 219
**089.** Development a new fractal algorithm on MRI to predict quality traits of loins. D. Caballero, A. Caro, J.M. Amigo, A. Dahl, B. Ersboll, Trinidad Perez-Palacios. CAIP-International Conference on Computer Analysis of Images and Patterns (2017) 208-218
**088.** Prediction of pork quality parameters by applying fractals and data mining on MRI. D. Caballero, T. Pérez-Palacios, A. Caro, J.M. Amigo, A.B. Dahl, B.K. Ersboll, T. Antequera. Food research International 99:1 (2017) 739-747
**087.** Ripeness monitoring of two cultivars of nectarine using VIS-NIR hyperspectral reflectance imaging. S. Munera, J.M. Amigo, J. Blasco, S. Cubero, P. Talens, N. Aleixos. Journal of Food Engineering 214 (2017) 29-39.
**086.** Interactions between macromolecule-bound antioxidants and Trolox during liposome autoxidation: A multivariate approach. E.E. Celik, J.M. Amigo, M.L. Andersen, V. Gökmen. Food Chemistry 237 (2017) 989-996.
**085.** Transferring results from NIR-Hyperspectral to NIR-multispectral imaging systems: a filter-based simulation applied to the classification of Arabica and Robusta green coffee beans. R. Calvini, J.M. Amigo, A. Ulrici. Analytica Chimica Acta 967 (2017) 33-41.
**084.** ATR-FTIR as a potential tool for controlling high quality vinegar categories. R. Ríos, R.M. Callejón, C. Oliver-Pozo, J.M. Amigo, D.L. García-González. Food Control 78 (2017) 230-237.
**083.** Interval ANOVA simultaneous component analysis (i-ASCA) applied to spectroscopic data to study the effect of fundamental fermentation variables in beer fermentation metabolites. Silvia Grassi, Christian Bøge Lyndgaard, Morten Arent Rasmussen, José Manuel Amigo. Chemometrics and Intelligent Laboratory Systems 163 (2017) 86-93.
**082.** Characterization and authentication of Spanish PDO wine vinegars using multidimensional fluorescence and Chemometrics. R. Ríos-Reina, S.E. Martín, J. A. Ocaña-González, D.L. García-González, J.M. Amigo, R.M. Callejón. Food Chemistry 230 (2017) 108-116.
**081.** Standardization from a benchtop to a handheld NIR spectrometer using mathematically mixed NIR spectra to determine fuel quality parameters. Neirivaldo C. da Silva. Cláudia Jessica Cavalcanto, Fernanda Araújo Honorato, José Manuel Amigo, Maria Fernanda Pimentel. Analytica Chimica Acta 954 (2017) 32-42.
**080.** Unveiling multiple solid-state transitions in pharmaceutical solid dosage forms using multi-series hyperspectral imaging and different curve resolution approaches. Guilherme L. Alexandrino, José M. Amigo, Milad R. Khorasani, Jukka Rantanen, Anders V. Friderichsen and Ronei J. Poppi. Chemometrics and Intelligent Laboratory Systems 161 (2017) 136-146.

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**079.** The role of exopolysaccharide-producing cultures and whey proteiningredients in yoghurt. Patrizia Buldo, Connie Benfeldt, Ditte Marie Folkenberg, Hanne Bak Jensen, Jose Manuel Amigo, Sander Sieuwerts, Katrine Thygesen, Frans van den Berg, Richard Ipsen. LWT - Food Science and Technology 72 (2016) 189-198.
**078.** Process optimization of dry granulation based tableting line: extracting physical material characteristics from granules, ribbons and tablets using near-IR (NIR) spectroscopic measurement. M. Khorasani, J.M. Amigo, P. Bertelsen, C.C. Sun, J. Rantanen. Powder Technology 300 (2016) 120-125.

**077.** Identification and quantification of turkey meat adulteration in fresh, frozen-thawed and cooked minced beef by FT-NIR spectroscopy and chemometrics. C. Alamprese; J.M. Amigo; S.B. Engelsen; E. Casiraghi. Meat Science 121 (2016) 175-181.
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**12.** Beer fermentation monitoring by using FT-NIR spectroscopy. Silvia Grassi, José Manuel Amigo, Christian Lyndgaard, Ileana Vigentini, Ernestina Casiraghi. NIR2013 Proceedings, 2 - 7 June, La Grande Motte, France. 2013.
**13.** MCR applied to milk lactic acid fermentation monitoring. S. Grassi, C. Alamprese, V. Bono, C. Picozzi, R. Foschino, E. Casiraghi, JM. Amigo. NIR2013 Proceedings, 2 - 7 June, La Grande Motte, France. 2013.

**14.** Automated localization of the femoral head center on pelvis radiographs. F.J. McEvoy, C. Henriksson, C. Obel, D.H. Nielsen, J. Amigo. Veterinary Radiology and Ultrasound, 2013 Vol 56 (6), 680-698
**15.** Detecção de claudicação – o reconhecimento de padrões em dados de sistema de ordenha robótica e os desafios em classificar o grau de claudicação [Lameness detection – pattern recognition on robotic milking data and gait scoring challenges]. Garcia E., König K., Klaas I., Amigo J.M., Allesen-Holm B.H., Bro R., Enevoldsen C. Proceedings of the VI CONGRESSO CIÊNCIAS VETERINÁRIAS 2014. April 3 - 5, 2014. Page 9. ISBN: 978-989-20-4577-1
**16.** Important steps towards automatic lameness detection. Klaas, I.C., Garcia, E, Amigo, J.M., Bro, R., König, K., Allesen-Holm, B.H., Enevoldsen, C. Proceedings of the First dairycare conference, 22-23 August 2014. Copenhagen, Denmark. Page 46. Edited by C.H. Knight. Published by DairyCare COST Action FA1308. ISBN 978-0-9930176-0-5.
**17.** Chemical Imaging for Detecting Explosives in Human Handprints. Mª Ángeles Fernández de la Ossa, José Manuel Amigo and Carmen García-Ruiz. XI Simposio de Investigadores Jóvenes RSEQ. Emilio J. Cocinero [et al.]. 4-7 November, 2014, Bilbao, Spain. ISBN: 978-84-697-1492-8.
**18.** From NIR-hyperspectral to NIR-multispectral imaging: development of a classification model for the discrimination of green coffee species. R. Calvini, J.M. Amigo, A.Ulrici. Proceedings of the 17th International Conference on Near Infrared Spectroscopy. Foz do Iguassu. Brazil. 18-23 October 2015. DOI: 10.17648/nir-2015-34178. 37-40
**19.** Atmospheric elemental and organic carbon monitoring with HSI-NIR spectroscopy. S. Elcoroaristizabal, J.M.Amigo, I.Elorduy, N.Durana, J.A. García, L.Alonso. Proceedings of the 17th International Conference on Near Infrared Spectroscopy. Foz do Iguassu. Brazil. 18-23 October 2015. DOI: 10.17648/nir-2015-34178. 54-56.
**20.** A comparative study of the volatile profile of wine vinegars with protected designation of origin by sorptive extraction techniques. Rocío Ríos-Reina, M. Lourdes Morales, José M. Amigo, Diego L. García-González, Raquel M. Callejón. XVI Scientific meeting of the Spanish society of chromatography and related techniques - SECyTA. J.A. González-Pérez, G. Almendros, F.J. González-Vila and J.M. de la Rosa. 2-4 November, 2016, Sevilla, Spain. ISBN-13-978-84-617-6155-5

## Non-Peer review publications

**01.** Analyse af blandinger med MCR. José Manuel Amigo, Søren Balling Engelsen, Rasmus Bro, Lars Nørgaard. Dansk Kemi 92:3 (2011).
**02.** Hyperspektral farmaceutisk. José Manuel Amigo, Søren Balling Engelsen, Rasmus Bro, Lars Nørgaard. Dansk Kemi 92:6-7 (2011).
**03.** NIR hyperspectral imaging for plastics classification. Maider Vidal, Aoife Gowen, José Manuel Amigo. NIR News 23:1 (2012) 13 - 15
**04.** Emerging possibilities of near infrared spectroscopy and near infrared chemical imaging in the pharmaceutical manufacturing industry. The challenge of the process analytical technologies paradigm or just a research tool. José Manuel Amigo. NIR News 24:8 (2013) 9 - 12.
**05.** Near promising future of near infrared hyperspectral imaging in forensic sciences. Maria Ángeles Fernández de la Ossa, Carmen García-Ruiz, José Manuel Amigo. NIR News 25:4 (2014) 1-9.
**06.** Moving towards continuous manufacturing with NIRS and NIR-CI systems. Milad Rouhi Khorasani, Jukka Rantanen, José Manuel Amigo, Poul Bertelsen. European Pharmaceutical Review. VOLUME 19 ISSUE 4 2014
**07.** Manufacturing semi-solid and liquid dosage forms: A point of view from the NIR-PAT perspective. Manel Bautista, José Manuel Amigo. European Pharmaceutical Review.Volume 20, issue 1 2015
**08.** Moving to fast chemical imaging techniques in process control. Jian X. Wu, José Manuel Amigo, Manel Bautista. European Pharmaceutical Review. European Pharmaceutical Review 21:1 (2016) 48:51.
**09.** Infrared spectroscopy and chemometrics to evaluate paper variability in document dating. C. S. Silva, M.F. Pimentel, J.M. Amigo, C. Garcia Ruiz, F. Ortega-Ojeda. Spectroscopy Europe 30:5 (2018) 12-15.
**10.** Near-infrared hyperspectral image at a glance: Some personal thoughts. José Manuel Amigo. NIR news. July 2020.

## Invited/plenary/Keynote talks (+30. List not complete)

**1.** Chemometric tools for process monitoring and control. José Manuel Amigo. XXIII Congresso Nazionale della Società Chimica Italiana. Sorrento, Italy, 05-10/07/2009
**2.** Chemical Imaging. From RGB to hyperspectral. Features, benefits and drawbacks. José Manuel Amigo. XV Reunión de la SEQA. San Sebastián, Spain, 19-21/07/2009
**3.** NIR-CI in Pharmaceutical Research: resolution and segmentation issues. José Manuel Amigo. International Workshop on Multivariate Image Analysis. Valencia, Spain, 28-29/09/2009

**4.** Philosophy behind PAT and practical implementation. José Manuel Amigo. EMBRAPA-DENMARK workshop. Rio de Janeiro, Brazil, 27-28/10/2011
**5.** Philosophy behind PAT. José Manuel Amigo. NESTLE. York, England. 10/2011
6. Chemometrics at KU-LIFE. Twenty years of modelling the world. José Manuel Amigo. Nofima, Ås, Norway. 10/2011
**7.** Multi-way analysis in chemistry. José Manuel Amigo. Ryu-Kyu University, Okinawa, Japan. March-2012
**8.** Multi-way data analysis. José Manuel Amigo. Dupont. Aarhus, Denmark. May 2012
**9.** Chemometrics from the laboratory to the industry in hyperspectral imaging. José Manuel Amigo, Aoife Gowen. Imaging Food Quality workshop. Taastrup, denmark. 15/01/2013
**10.** Multivariate data analysis/Image analysis. José Manuel Amigo. University of Alcalá de Henares, Spain. March, 2013. Workshop of 2 hours.
**11.** Hyperspectral Imaging and Chemometrics from the laboratory to the industry. José Manuel Amigo. II International Workshop on Multivariate Image Analysis. Valencia, Spain. 23-24 May, 2013.
**12.** Dairy Images processing with multivariate data analysis. José Manuel Amigo. Second IDF Symposium on Microstructure of Dairy Products. 3rd-4th March 2014. Melbourne, Australia.
**13.** The Quest of Hyperspectral Imaging in Pharmaceutics for PAT Implementations. José Manuel Amigo. Visionday 2014. 14th of May, 2014. Lyngby.
**14.** Calidad en la alimentación usando herramientas matemáticas de una forma visual, rápida y eficaz. José Manuel Amigo. Jornadas de nuevas tendencias y estrategias analíticas en la autentificación de alimentos. 10th of April, 2015. Sevilla. Spain
**15.** Conexión Universidad – Empresa en los estudios de máster, doctorado y post-doctorado en Dinamarca. José Manuel Amigo. II Jornada de Primavera de la Escuela de Doctorado. "La globalización y la formación en investigación. Universidad de Burgos. Burgos, Spain. 27th of May, 2015.
**16.** One Analytical Chemist between food scientists. Why? Multivariate Perspective of Complex Data Analysis. José Manuel Amigo. Federal University of Pernambuco. 12th of August, 2015. Recife, Brazil.
**17.** Multi-way analysis. Past, present and future. José Manuel Amigo. 10th Winter Symposium of Chemometrics. February 29 – March 4, 2016. Samara, Russia.
**18.** Benefits of image analysis in the industry with particular focus on the most recent hyperspectral (and/or multispectral) imaging applications and perspectives. José Manuel Amigo. University of Turin. 21st of March, 2016. Torino, Italy.
**19.** Hyperspectral Image Analysis. Where are we and where should we go? José Manuel Amigo. XVI Chemometrics in Analytical Chemistry. June 6-10, 2016. Barcelona, Spain.
**20.** Hyperspectral imaging in industrial setups. Adaptation and implementation. José Manuel Amigo. IASIM. 6th Conference in Spectral Imaging. July 3-6, 2016. Chamonix Mont-Blanc, France.
**21.** Imagen hiperspectral en la vida real. Aplicaciones prácticas en diferentes disciplinas científicas. José Manuel Amigo. September, 2106. Universidad de Concepción. Concepción. Chile.
**22.** HYPER-Tools demonstration. A freeware package to treat Hyperspectral Images. September, 2016. University of Brasilia. Brasilia. Brazil.
**23.** Chemometrics from the laboratory to the industry. Practical implementation, benefits and drawbacks. 18 Encontro Nacional de Química Analítica. 18-21 September. Florianópolis. Brazil.
**24.** Chemometrics from the laboratory to the industry. Practical implementation, benefits and drawbacks. Federal University of Pernambuco. 30 September 2016. Recife, Brazil.
**25.** FOOD – NIR – CHEMOMETRICS. What else? V Semana Engenharia de Alimentos. January 2017. Federal University of Pernambuco. Recife. Brazil.
**26.** Hyperspectral imaging from the space to the lab. Chellenges and perspectives. BIT'S 6th Annual Conference of AnalytiX-2018. 25-29 March 2018. Miami. USA.
**27.** Near Infrared in Hyperspectral Images. Sensors, cameras and applications. The 18th ANISG/NZNIRS Conference. 11-12 April 2018. Rotorua. New Zealand.
**28.** As easy as bread, as complicated as bread. Pre-processing in Hyperspectral images. José Manuel Amigo, Merete Møller, Henrik Lundkvist, Søren Engelsen. X Colloquium Chemometricum Mediterraneum. June 12-14. Menorca. Spain.
**29.** NIR-Hyperspectral Imaging Making a Difference in our Life. 19th International Conference on Near Infrared Spectroscopy. Gold Coast, Australia. 15-20 September, 2019. **Thomas Hirschfeld Award Keynote**.
**30.** Raman Imaging and Data mining. Tips and Tricks. Seminar at the Federal University of Minas Gerais, Brazil. 5th of November, 2019.

## Other talks in international conferences (+60. The presenting author is underlined, list not completed)

**1.** Preparation and characterization of exhausted electrowinning electrolyte reference material.Gorka Arana, José Manuel Amigo, Nestor Etxebarria, Luís Ángel Fernandez.XII Conférence Internationale on Heavy Metals in the Environment. Grenoble, France , May 2003.
**2.** Resolución Multivariable de Curvas restringida (HS-MCR) aplicada al análisis cinético de oxipurinas y ácido úrico en orina humana. (Hard-Soft Multivariate Curve Resolution applied to the kinetic analysis of oxipurines and uric acid in human urine). José Manuel Amigo, Anna de Juan, Jordi Coello, Santiago Maspoch.1r. Workshop de la Xarxa Catalana de Quimiometria. Barcelona, Spain. September 2005.
**3.** Multidimensional fluorescence and three-way Chemometrics. A new Step forward in the monitoring of bioprocesses in Real Time. José Manuel Amigo, Anna Surribas, José Luís Montesinos, Francisco Valero, Jordi Coello, Santiago Maspoch.XX Reunión Nacional de Espectroscopía. IV Congreso Ibérico de Espectroscopía. Ciudad Real, Spain. September 2006.
**4.** Modelling kinetic reactions. Comparison of several algorithms.José Manuel Amigo, Jordi Coello, Santiago Maspoch. VI Colloquium Chemometricum Mediterraneum. Saint Maximin, France, September, 2007.
**5.** Chemometric Study of Nanoparticles Growth and Conjugation.José Manuel Amigo, Míriam Varón, Socorro Vázquez, Neus Bastús, Eudald Casals, Joan Comenge, Jordi Coello, Santiago Maspoch, Victor Puntes.11th Conference of Chemometrics in Analytical Chemistry. Montpellier, France. July, 2008.
**6.** Study of Pharmaceutical Samples by NIR-CI and Multivariate Analysis.Manel Bautista, José Manuel Amigo, Jordi Cruz, Jordi Coello, Santiago Maspoch, Marcel Blanco.11th Conference of Chemometrics in Analytical Chemistry. Montpellier, France. July, 2008.
**7.** Quantitative Analysis Potential by NIR Imaging in Pharmaceutical Field. Manel Bautista, José Manuel Amigo, Jordi Cruz, Marcel Blanco.XXI Reunión Nacional de Espectroscopia, V Congreso Ibérico de Espectroscopia. Murcia, Spain. September, 2008.
**8.** A Chemometric approach to the environmental problem of predicting toxicity in contaminated sediments. Manuel Alvarez-Guerra, Davide Ballabio, José Manuel Amigo, Rasmus Bro, Javier R. Viguri. 11th Scandinavian Symposium on Chemometrics. Loen/Stryn, Norway. 8-11/06/2009.
**9.** Improvements on GC-MS aroma profile of llDRØD PIGEON (Malus domestica) apples exposed to different length of ripening time by using PARAFAC2. J. M. Amigo, R. M. Callejón, M. J. Popielarz, M. L. Morales, A. M. Troncoso, T. B. Toldam-Andersen, M. A. Petersen. TRICAP 2009. Three Way Methods in Chemistry And Psychology. Vall de Nuria, Spain. 14-06/19-06/2009.
**10.** Prediction of toxicity from contaminated sediments using PLS-DA and CP-ANN models.Manuel Alvarez-Guerra, Davide Ballabio, José Manuel Amigo, Rasmus Bro, Javier R. Viguri. 8th World Congress of Chemical Engineering. Montreal, Canada. 23-08/27-08/2009.
**11.** Comparison of PAH levels and sources in pine needles from Portugal, Spain and Greece. Nuno Ratola, José Manuel Amigo, Sílvia Lacorte, Damià Barceló, Elefteria Psillakis, Arminda Alves. 7th Aegean Analytical Chemistry Days (AACD2010). Lesvos, Greece. 29-09/03-10/2010.
**12.** Intensive sediment sampling in the estuary of the Nerbioi-Ibaizabal River (Bay of Biscay, Basque Country) to study trace element pollution. *A. Gredilla, S. Fdez-Ortiz de Vallejuelo, J.M. Amigo, A. de Diego, R. Bro, J. M. Madariaga.* Isobay 12. 3-6 May. Brest, France. 2010
**13.** Comparison of bi and tri-dimensional multivariate methods in environmental monitoring. *Ainara Gredilla, Jose Amigo, Silvia Fdez-Ortiz de Vallejuelo, Alberto de Diego, Rasmus Bro, Juan Manuel Madariaga.* II Colloquium Chemometricum Mediterranium. 21-25 June. Grenade, Spain. 2010.
**14.** Resolution of Enantiomeric Mixtures in Chromatography with Multi-way techniques. A case study. José Manuel Amigo and Morten R. Eriksen. 12th Scandinavian Symphosium of Chemometrics. Bilund, Denmark. 7-10 June, 2011.
**15.** ChromaTHography. Solving chromatographic issues with mathematical models and intuitive graphics. A Practitioner perspective. José Manuel Amigo, Thomas Skov, Rasmus Bro. IV Workshop de Quimiometría. A Coruña, Spain. 28-29 November. ISBN: 978-84-9749-496-0. D.L.: C-2635-2011.
**16.** Plant metabolomics – Multi-way resolution of triterpenoid saponins in LC-MS profiles from Barbarea vulgarisand implications for plant-insect interactions. Bekzod Khakimov, José Manuel Amigo, Søren Bak, Søren B. Engelsen. 8th international conference of the Metabolomics society. 25-28 of June, 2012.
**17.** Robust and automatic resolution of overlapping peaks in chromatographic data. Lea G. Johnsen, José Manuel Amigo,Thomas Skov, Rasmus Bro. XIII Chemometrics in Analytical Chemistry. Budapest, Hungary. 25-29/06/2012.
**18.** Revealing solvent mediated piroxicam solid dispersion crystallization using online Raman spectroscopy and polarized light microscopy with image analysis. Wu, J.X..; van den Berg, F.; Amigo J.M.; Xia, D.; Yang, M.; Rades, T. 2011 5th PSSRC Symposium, Helsinki, Finland

**19.** Development of a fast screening platform to investigate the influence of process and formulation factors on solid dispersions: a step towards QbD. Wu, J.X.; van den Berg, F.; Amigo, J.M.; Xia, D.; Yang, M.; Rades, Rantanen, J. 2011 5th PSSRC Symposium Helsinki, Finland.

**20.** Improving Quality In Bread: Potential of using NIR and NIR-CI for measuring the spatial distribution of staling of white wheat bread. Arantxa del Olmo, José Manuel Amigo, Merette Møller, Søren B. Engelsen. NIR 2013 - 16th International Conference on Near Infrared Spectroscopy. 2 - 7 June 2013, La Grande-Mote, France.

**21.** MCR applied to milk lactic acid fermentation monitoring. S. Grassi, C. Alamprese, V. Bono, C. Picozzi, R. Foschino, E. Casiraghi, JM. Amigo. NIR2013 Proceedings, 2 - 7 June, La Grande Motte, France. 2013.

22. Can lame cows be detected using data from voluntary milking systems? Emanuel García, Ilka Klaas, José Manuel Amigo. International conference of lameness in rumiants. 11th - 14th August, 2013. Bristol, UK.

**23.** Application of Near Infrared and PLS-DA to classify almonds with respect to their bitterness. Eva Borrás, José Manuel Amigo, Frans van den Berg, Ricard Boqué, Olga Busto. VIII Colloquium Chemometricum Mediterraneum. 30th June - 4th July, 2013. Bevagna, Italy.

**24.** Can lame cows be detected with automatic milking systems data? Emanuel García, Ilka Klaas, José Manuel Amigo. VIII Colloquium Chemometricum Mediterraneum. 30th June - 4th July, 2013. Bevagna, Italy.

**25.** A method for blend uniformity end-point determination using near-infrared spectroscopy, multivariate data analysis and hard modelling. Khorasani, M; Rantanen, J; Berg, F; Amigo, JM. EUPAT 6 (SIXTH PAN-EUROPEAN QbD & PAT SCIENCE CONFERENCE), 23-24 September 2013, Porto, Portugal.

**26.** Automated Localization of the femoral head center on pelvis radriographs. F.J. McEvoy, C. Henriksson, C. Obel, D.H. Nielsen, J. Amigo. American College of Veterinary Radiology (ACVR) Annual Conference Savannah, Georgia, Friday 11th Oct 2013.

**27.** Detecção de claudicação – o reconhecimento de padrões em dados de sistema de ordenha robótica e os desafios em classificar o grau de claudicação [Lameness detection – pattern recognition on robotic milking data and gait scoring challenges]. Garcia E., König K., Klaas I., Amigo J.M., Allesen-Holm B.H., Bro R., Enevoldsen C. VI CONGRESSO CIÊNCIAS VETERINÁRIAS 2014. April 3 - 5, 2014.

**28.** A comprehensive study of beer fermentation by using NIR and MIR spectroscopy and advanced data analysis. Silvia Grassi, José Manuel Amigo, Christian Lyndgaard, Robero Foschino, Ernestina Casiraghi. 11th International Trends in Brewing. 13-17 April, 2014. Ghent, Belgium.

**29.** Detection of explosives in human handprints by using HSI-NIR and chemometrics. Maria Ángeles Fernández de la Ossa, Carmen García-Ruiz, José Manuel Amigo. VI symposium of NIR spectroscopy. 28-30 May 2014. Modena, Italy.

**30.** Monitoraggio del processo di fermentazione della birra mediante spettroscopia NIR e MIR e metodi avanzati di analisi dei dati. Silvia Grassi, José Manuel Amigo, Christian B. Lyndgaard, Roberto Foschino, Ernestina Casiraghi. VI symposium of NIR spectroscopy. 28-30 May 2014. Modena, Italy.

**31.** HSI-NIR AND CHEMOMETRICS IN FORENSIC SCIENCE: DETECTION OF EXPLOSIVE RESIDUES IN HUMAN HANDPRINTS. Maria Ángeles Fernández de la Ossa, Carmen García-Ruiz, José Manuel Amigo. Chemometrics In Analytical Chemistry 2014. June 9 - 13, 2014. Richmond, Virginia. USA

**32.** Daily Freshness Decay of Minimally Processed Apples using Vis/NIR Multispectral Imaging: Preliminary Tests. Raffaele Civelli, José M. Amigo, Valentina Giovenzana, Roberto Beghi, Riccardo Guidetti. FRUTIC. Italy 2015. May 19th - 22nd, 2015. Milan. Italy.

**33.** Sparse methods applied to hyperspectral imaging: Classification of Arabica and Robusta green coffee beans. R. Calvini, A. Ulrici, J. M. Amigo. XX Congresso della divisione di chimica analitica. 13-17 September. Trieste, Italy, 2015.

**34.** Monitoring solid-state transitions of drugs in solid dispersions using IR-hyperspectral imaging and MCR-ALS. Guilherme L. Alexandrino, Ronei J. Poppi, José M. Amigo, Anders Friderichsen. II Escola de Inverno de Quimiometria. July 20-24. 2015. Campinas, Brazil.

**35.** Transfering results from NIR-Hyperspectral to NIR-multiespectral imaging: A filter-based simulation applied to the classification of Arabica and Robusta green coffee beans. R. Calvini, JM Amigo, A. Ulrici. 17h ICNIRS. Foz de Iguassú, Brazil. October 13-17, 2015.

**36.** Spatial distribution of the staling process in bread studied by Hyperspectral Imaging. Arantxa del Olmo, José Manuel Amigo, Merete Møller Engelsen, Henrik Lundkvist, Søren Balling Engelsen. 2015 AACC International Centennial Meeting. October 18-21. Minneapolis, Minnesota, U.S.A.

**37.** 3D-reconstruction and 3D-fractal analysis of pulmonary vessels in diseased dogs with and without pulmonary thromoembolism. A.V. Müller, C.B. Marschner, A.T. Kristensen, F.J. McEvoy, J.M. Amigo. 2015 EAVDI-BID. Chester, UK, 6th of November 2015.

**38.** Sparse-based exploration of hyperspectral images. R. Calvini, J.M. Amigo, A. Ulrici. IASIM. 6th Conference in Spectral Imaging. July 3-6, 2016. Chamonix Mont-Blanc, France

**39.** From Hyperspectral to Multispectral imaging: Identification of proper spectral channels for the construction of effective NIR multispectral imaging systems". Rosalba Calvini, José Manuel Amigo, Alessandro Ulrici. NIR Italia 2016. 12-14 October, 2016. Milan, Italy.
**40.** ATR-FTIR spectroscopy applied to the characterisation of PDO wine vinegars. Diego L. García-González, Rocío Ríos-Reina, Celia Oliver, José M. Amigo, Raquel Mª Callejón. The RME conference series. Food, feed, water analysis. 7-9 November, 2016 Amsterdam, The Netherlands.
**41.** Interactions between macromolecule- bound antioxidants and free antioxidant Trolox in liposome medium: a multivariate approach. Celik, E. E., Rubio, J. M. A., Andersen, M. L., Gokmen, V. EuroFoodChem XIX Conference, 4-6 October 2017, Budapest, Hungary.
**42.** Extraction of Quantitative Spectral Data from Pulsed Wave Doppler Ultrasound Examinations. A. Müller, F. McEvoy, J.M. Amigo. EVDI. 29th of August – 2nd September. 2017. Verona. Italy.
**43.** The Role of Hyperspectral Imaging in Modern Analytical Chemistry. Challenges and perspectives. José Manuel Amigo. AnalytiX-2018. BIT 6th Annual Conference. March 26-28, 2018. Miami. USA.
**44.** HYPERSPECTRAL IMAGING AND CHEMOMETRICS. Past, present and... Future? José Manuel Amigo. IASIM2018. June 17-20, 2018. Seattle, WA USA.

## Posters and flash presentations (+130. List not completed)

**1.** Simultaneous determination of xanthine and hypoxanthine in human urine in presence of uric acid. José Manuel Amigo, Idoia Lejona, Jordi Coello, Santiago Maspoch.9 th International Conference in Chemometrics in Analytical Chemistry. Lisbon , Portugal . September 2004.
**2.** Three-way methods for the modelling of complex enzymatic systems. Comparison between PARAFAC, PARAFAC2 and MCR-ALS.José Manuel Amigo, Jordi Coello, Santiago Maspoch. 9 th International Conference in Chemometrics in Analytical Chemistry. Lisbon , Portugal . September 2004.
**3.** Parallel Factor Analysis combined with Partial Least Squares Regresión applied to the on-line monitoring of Pichia Pastoris cultures. José Manuel Amigo, Anna Surribas, Jordi Coello, Santiago Maspoch, José Luís Montesinos, Francisco Valero.11as Jornadas de Análisis Instrumental. Barcelona, Spain. November 2005.
**4.** Hard-Soft Multivariate Curve Resolution applied to the quantitative determination of oxipurines and uric acid in human urine.José Manuel Amigo, Anna de Juan, José Manuel Salado, Jordi Coello, Santiago.11as Jornadas de Análisis Instrumental. Barcelona, Spain. November 2005.
**5.** An introduction to Multivariate Curve Resolution-Alternating Least Squares. Spectrophotometric study of acid-base equilibria of 8-hydroxyquinoline-5-sulfonic acid. Cristina Rodríguez-Rodriguez, José Manuel Amigo, Jordi Coello, Santiago Maspoch.11as Jornadas de Análisis Instrumental. Barcelona, Spain. November 2005.
**6.** Análisis cuantitativo simultáneo de mezclas de ácido acetilsalicílico y ácido salicílico. Estudio preliminar con MCR-ALS y HS-MCR-ALS. (Quantitative analysis of mixtures of acaetilsalicilic and salicilic acids. Preliminar studies with MCR-ALS and HS-M CR-ALS). Maider Vidal, Francisco Acha, Miren Ostra, Carlos Ubide, Felicitat Franch-Lage, José Manuel Amigo, Jordi Coello, Santiago Maspoch.1ª Reunión de jóvenes investigadores en Quimiometria. Tarragona, Spain. December, 2006.
**7.** Solving GC-MS problems with PARAFAC2.José Manuel Amigo, Thomas Skov, Jordi Coello, Santiago Maspoch, Rasmus Bro.VI Colloquium Chemometricum Mediterraneum. Saint Maximin, France, September, 2007.
**8.** Aplicación de MCR-ALS al estudio de la reacción de oxidación de catecolaminas. (Aplication of MCR-ALS to the study of oxidation reaction of Cathecolamines). Felicitat Franch-Lage, José Manuel Amigo, Santiago Maspoch, Jordi Coello.XIV Reunión Nacional de la Sociedad Española de Química Analítica. Pollensa, Palma de Mallorca, Spain, October, 2007.
**9.** Direct quantification in the production of tablets.José Manuel Amigo, Carsten Ravn, Erik Skibsted, Rasmus Bro.Visionday 2008. Lyngby, Denmark. May, 2008.
**10.** Screening procedures to study homogeneity in pharmaceutical tablets. Carlos Cairós, José Manuel Amigo, Jordi Coello, Santiago Maspoch.Visionday 2008. Lyngby, Denmark. May, 2008. BEST POSTER AWARD.
**11.** Analysis of pharmaceutical comercial tablets by NIR-CI and MCR-ALS. Manel Bautista, José Manuel Amigo, Jordi Cruz, Marcel Blanco, Jordi Coello, Santiago Maspoch.11th Conference of Chemometrics in Analytical Chemistry. Montpellier, France. July, 2008.
**12.** Quantification of homogeneous surfaces of pharmaceutical samples by using NIR Chemical Imaging. Jordi Cruz, José Manuel Amigo, Marcel Blanco, Manel Bautista, Jordi Coello, Santiago Maspoch.11th Conference of Chemometrics in Analytical Chemistry. Montpellier, France. July, 2008.
**13.** Fluorescence analysis of the interaction of the peptide sequence E1(145-162) of hepatitis GB virus C with liposomes. Maria Jesús Sanchez-Martín, José Manuel Amigo, Montserrat Pujol, Isabel Haro, M. Asunción Alsina, M. Antonia Busquets.XIII International Symposium on Luminescence Spectrometry. Bologna, Italy. September, 2008.

**14.** Screening procedures to study homogeneity in pharmaceutical tablets using Near Infrared Hiperspectral Image. Carlos Cairós, José Manuel Amigo, Jordi Coello, Santiago maspoch.XXI Reunión Nacional de Espectroscopia, V Congreso Ibérico de Espectroscopia. Murcia, Spain. September, 2008.
**15.** Aplicación de HS-MCR-ALS al estudio de la reacción de oxidación de catecolaminas (HS-MCR-ALS applied to the oxidation of cathecolamines). Felicitat Frach-Lage, José Manuel Amigo, Jordi Coello, Santiago Maspoch.XXI Reunión Nacional de Espectroscopia, V Congreso Ibérico de Espectroscopia. Murcia, Spain. September, 2008.
**16.** Quality control of raw medicinal herbs using NIR reflectance spectra and NIR imaging. Juan Ricardo Lucio, Jordi Coello, Santiago Maspoch, Jose Manuel Amigo. 12as Jornadas de Analisis Instrumental. Barcelona, Spain. 21-23/10/2008.
**17.** Imaging Techniques: Towards the Assessment of Homogeneity.Manel Bautista, Carlos Cairós, José Manuel Amigo. Manel Bautista, Carlos Cairós, José Manuel Amigo.EASIM-09. Hyperspectral Imaging. Gembloux, Bélgica. 03-04/03/2009.
**18.** Hyperspectral Image Analysis for Bread Characterization in the Baking Industry. M. Li Vigni, J. M. Amigo, A. Ulrici, G. Foca, M. Cocchi, R. Bro, B.P. Møller Jespersen. EASIM-09. Hyperspectral Imaging. Gembloux, Bélgica. 03-04/03/2009.
**19.** Evolution of additives in electroplating nickel baths. José Manuel Amigo, Rasmus Bro, Miren Ostra, Carlos Ubide, Maider Vidal. 11th Scandinavian Symposium on Chemometrics. Loen/Stryn, Norway. 8-11/06/2009.
20. Polycyclic Aromatic Hydrocarbons Distribution in Portugal using Pine needles as Bio-Tracers. Nuno Ratola, Jose Manuel Amigo, Arminda Alves. Scandinavian Symposium on Chemometrics. Loen/Stryn, Norway. 8-11/06/2009.
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