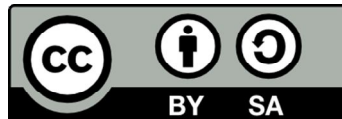




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Multivariate Signal Processing for Quantitative and Qualitative Analysis of Ion Mobility Spectrometry data, applied to Biomedical Applications and Food Related Applications

Ana Verónica Guamán Novillo



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FACULTAT DE FÍSICA

Departament d'Electrònica

MEMÒRIA PER OPTAR AL TÍTOL DE DOCTOR PER LA UNIVERSITAT DE
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Doctorat en Enginyeria i Tecnologies Avançades (RD 99/2011)

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Qualitative Analysis of Ion Mobility Spectrometry
data, applied to Biomedical Applications and Food
Related Applications**

by

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List of Publications and Conferences

Publications

- **Direct coupling of a gas-liquid separator to an Ion Mobility Spectrometer for the classification of different white wines using chemometrics tools**
Authors: -Delgado R, Arce L, Guaman A.V., Pardo A, Marco S, and Valcárcel
Journal: Talanta
DOI: 10.1016/j.talanta.2011.01.044
- **Rapid detection of sepsis in rats through volatile organic compounds in breath**
Authors: Guaman Ana V, Carreras A.V., Calvo D, Agudo I, Navajas D, Pardo A, Marco S, Farre R.
Journal: Journal of Chromatography B
DOI: 10.1016/j.jchromb.2011.12.001
- **The potential of ion mobility spectrometry (IMS) for detection of 2,4,6-trichloroanisole (2,4,6-TCA) in wine**
Authors: Karpas Zeev, Guaman Ana.V., Calvo, Daniel, Pardo, Antonio, Marco S.
Journal: Talanta
DOI: 10.1016/j.talanta.2012.02.012
- **Multivariate curve resolution of nonlinear ion mobility spectra followed by multivariate nonlinear calibration for quantitative prediction**
Authors: Pomareda V, Guaman A.V., Mohammadnejad M., Calvo M.,Pardo A.,Marco S.
Journal: Chemometrics and Intelligent Laboratory Systems
DOI: 10.1016/j.chemolab.2012.06.002
- **Comparison of the performance of three ion mobility spectrometers for measurement of biogenic amines**
Authors: Karpas Z., Guaman A.V., Pardo A.,Marco S.
Journal: Analytical Chimica Acta
DOI: 10.1016/j.aca.2012.11.003
- **Book chapter: "Volatile organic compounds (VOCs) for non-invasive plant diagnostics"**
Authors: Aksenov, Alexander; Guaman, Ana; Sankaran, Sindhu; Fung, Alexander; Pasamontes, Alberto; Martinelli, Frederico; Cheung, William; Eshani, Reza; Dandekar, Abhaya; Davis, Cristina
Manuscript ID: bk-2013-00092c.R1

Conferences

- Breath Analysis through Ion Mobility Spectrometry in patients with Chronic Obstructive Pulmonary and Lung Cancer
Event: II Jornadas de Formación-CIBERES(Centro de Investigación Biomédica en Red de Enfermedades Respiratorias).
Date: October 15-16th, 2009.
Location: Fundación Caubet-Cimera, Recinto Hospital Joan March, Bunyola (Mallorca)
Authors: Ana Guamán; Federico P. Gómez, Idoya Agudo, Daniel Calvo, Antonio Pardo, Josep Roca, Marta Cascante, Santiago Marco
- Pilot Study: Breath Analysis with GC/MS to Identify SEPSIS in Rats.
Event: 3rd IBEC (Institute for Bioengineering of Catalonia) Symposium. Bioengineering and Nanomedicine
Location: IBEC Bioengineering and Nanomedicine Symposium- Auditori AXA. Barcelona
Authors: Ana. Guamán, A. Carreras, D. Calvo, I. Agudo, D. Navajas, A. Pardo, S. Marco, R. Farré
- Comparative of different calibration strategies for Ion Mobility Spectrometry.
Event: 19th ISIMS (International Society for Ion Mobility Spectrometry) Annual Conference.
Date: July 18-23, 2010
Location: Albuquerque, New Mexico, USA
Authors: A. Guamán, D. Calvo, I. Agudo, F. Gomez, A. Pardo, S. Marco
- Comparative study of three different methods for breath sampling using IMS analyzer.
Event: European Respiratory Society (ERS) Annual Congress
Date: September 18-22, 2010
Location: Barcelona
Authors: Ana Guamán, Antonio Pardo, Daniel Calvo, Idoya Agudo, Roldán Cortes, Joan Albert Barberà, Marta Cascante, Santiago Marco, Federico P. Gomez
- Determination of Volatile Organic Compounds in exhaled breath of patients with Chronic Obstructive Pulmonary Disease by Gas Chromatography Mass Spectrometry.
Event: European Respiratory Society (ERS) Annual Congress
Date: September 18-22, 2010
Location: Barcelona
Authors: Roldán Cortés, Idoya Agudo, Daniel Calvo, Antonio Pardo, Ana Guaman, Santiago Marco, Joan Albert Barberà, Federico P. Gómez , Marta Cascante
- Different Strategies for Feature Selection Applied to determination of Biomarkers in Breath Analysis.
Event: XII Chemometrics in Analytical Chemistry.
Date: October 18-21,2010
Authors: Ana Guamán, Daniel Calvo, Idoya Agudo, Daniel Navajas, Antonio Pardo, Santiago Marco.Ramón Farré.
Location: Antwerp, Belgium

- Enhance Signal to Noise Ratio in Chemical Signals with a highly correlated noise.
Application: Ion Mobility Spectrometry.
Event: XIII Chemometrics in Analytical Chemistry.
Date: 25-29 June, 2012
Authors: Ana Guamán, Antonio Pardo, Santiago Marco.
Location: Budapest-Hungary
- Detection of sepsis by breath analysis using ion mobility spectrometry: study based on an animal model
Event: 2012 International Breath Analysis Meeting.
Date: 28 Oct – 1 Nov, 2012
Authors: Ana Guamán, Alba Carreras, Daniel Calvo, Idoya Agudo, Daniel Navajas, Antonio Pardo, Santiago Marco, Ramon Farré
Location: Sonoma, CA, USA
- Biomarkers in expired breath condensate (EBC) from Human Subjects Exposed to Varying 6,6 Hour Ozone Concentration-Time profiles using Gas Chromatography/Mass Spectrometry (GC/MS)
Event: 2013 Breath Summit
Date: 9-12 Jun 2013
Authors: Ana Guamán, Alexander Aksenov, Edward Scheledge, Antonio Pardo, Cristina Davis, Santiago Marco
Location: Saarbrücken/Wallerfangen, Germany

Oral Presentations

- “Intelligent Signal Processing and Pattern Recognition for Biomedical Applications”.
Event: Phd Discussion
Date: May 30, 2010
Location: Institute for Bioengineering of Catalonia.
- “Difference of determining Limit of Detection between Univariate and Multivariate Calibration. Application: Ion Mobility Spectrometry”
Event: XIII Chemometrics in Analytical Chemistry.
Date: 25-29 June, 2012
Authors: Ana Guamán, Antonio Pardo, Santiago Marco.
Location: Antwerp, Budapest
- “Detection of sepsis by breath analysis using ion mobility spectrometry: study based on an animal model”
Event: 2012 International Breath Analysis Meeting.
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Authors: Ana Guamán, Alba Carreras, Daniel Calvo, Idoya Agudo, Daniel Navajas, Antonio Pardo, Santiago Marco, Ramon Farré
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