

7th World Congress on

Mass Spectrometry

June 20-22, 2018 | Rome, Italy

Advanced Bayesian signal and image processing for mass spectrometry

Ali Mohammad-Djafari
CNRS, France

There have been recent advances in different techniques of mass spectrometry. However, in many of these techniques there are common mathematical frameworks: inverse problems. In this work, a few of these inverse problems are presented and an overview of the methods to handle them is given. The Bayesian inference approach is a very useful approach to handle these problems as it gives the possibility to account both for prior modeling of the signals and images and for the uncertainty associated to the measurement process. It also gives the necessary tools to estimate the hyper parameters and the remaining uncertainties in the proposed solution. To illustrate this, we take the deconvolution problem which is one of the main inverse problems in mass spectrometry and go through the different regularization and Bayesian inference methods and compare their relative performances.

Biography

Ali Mohammad-Djafari received the B.Sc. degree in electrical engineering from Polytechnic of Teheran, in 1975, the diploma degree (M.Sc.) from Ecole Supérieure d'Electricité (SUPELEC), Gif sur Yvette, France, in 1977, the "Docteur-Ingénieur" PhD degree and "Doctorat d'Etat" in Physics, from the University of Paris Sud 11 (UPS), Orsay, France, respectively in 1981 and 1987. He was Assistant Professor at UPS for two years (1981-1983). Since 1984, he has a permanent position at "Centre national de la recherche scientifique (CNRS)" and works at "Laboratoire des signaux et systèmes (L2S)" at Centrale-Supélec. He was a visiting Associate Professor at University of Notre Dame, Indiana, USA during 1997-1998. From 1998 to 2002, he has been at the head of Signal and Image Processing division at this laboratory.

Ali.mohammadDjafari@l2s.centralesupelec.fr

Notes: