

Call for papers

Dossier/Special issue on Advances in signal processing and image analysis for physico-chemical, analytical chemistry and chemical sensing

Oil & Gas Science and Technology - Revue d'IFP Energies Nouvelles

<http://tinyurl.com/ogst-signal-chemical-analysis>

Submission of final manuscript: **May 1st, 2013**

With the advent of more affordable, higher resolution or innovative data acquisition techniques (for instance hyphenated instrumentation such as two-dimensional chromatography), the need for advanced signal and image processing tools has grown in physico-chemical analysis, together with the quantity and complexity of acquired measurements. Either with mono- (signals) or two-dimensional (from hyphenated techniques to standard images) data, processing generally aims at improving quality and at providing more precise quantitative assessment of measurements of materials and products, to yield insight or access to information, chemical properties, reactive dynamics or textural properties, to name a few (for instance). Although chemometrics embrace from experimental design to calibration, more interplay between physico-chemical analysis and generic signal and image processing is believed to strengthen the two disciplines. Indeed, although they strongly differ in background and vocabulary, both specialties share similar values of best practice in carrying out identifications and comprehensive characterizations, albethey of samples or of numerical data.

The present call for papers aims at gathering contributions on recent progresses performed and emerging trends concerning (but not limited to):

- ◆ 1D and 2D acquisition, sparse sampling (compressive sensing), modulation/demodulation, compression, background/baseline/trend estimation, enhancement, integration, smoothing and filtering, denoising, differentiation, detection, deconvolution and source separation, resolution improvement, peak or curve fitting and matching, clustering, segmentation, multiresolution analysis, mathematical morphology, calibration, multivariate curve resolution, property prediction, regression, data mining, tomography, visualization, pertaining to the improvement of physico-chemical analysis techniques, including (not exclusively):

- ◆ (high-performance) gas, liquid or ion chromatography; gel electrophoresis; diode array detector; Ultraviolet (UV), visible, Infrared (NIR, FIR), Raman or Nuclear Magnetic Resonance (NMR) spectroscopy, X-ray diffraction (XRD), X-Ray Absorption (EXAFS, XANES), mass spectrometry; photoacoustic spectroscopy (PAS); porosimetry; hyphenated techniques; ion-sensitive sensors, artificial noses; electron microscopy (SEM, TEM),

in the following proposed domains:

- ◆ catalysis, chemical sensing, chemical engineering, oil and gas production, refining processes, petrochemicals, and other sources of energy, in particular alternative energies with a view to sustainable development.

Provisional deadlines:

Submission of final manuscript: **May 1st, 2013**

Publication: Beginning 2014

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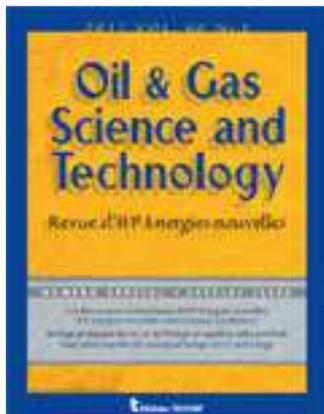
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Prospective authors are advised to send a brief statement of intent by an email to Dr. Laurent Duval [laurent(dot)duval(ad)ifpen(dot)fr] as soon as possible with the following information:

- ◆ corresponding author (affiliation),
- ◆ co-authors (affiliation),
- ◆ tentative title,
- ◆ keywords,
- ◆ reviewer proposal,
- ◆ statement of intent (context, issues addressed, tools used, originality of the contribution).



Further information:

Oil & Gas Science and Technology - Revue d'IFP Energies Nouvelles
<http://ogst.ifpenergiesnouvelles.fr>

Journal indexed in ISI
(2011 Impact factor: 1.389; 5-Year Impact Factor: 1.296)

ISSN (Print Edition): 1294-4475
ISSN (Electronic Edition): 1953-8189
Frequency: bi-monthly