



PSIP'2007

Fifth workshop on

Physics in Signal and Image Processing

Jan. 31 – Feb. 2, 2007, University of Haute-Alsace, Mulhouse, France



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A critical element in the definition and evaluation of signal and image processing methods is the validity and accuracy of the underlying scene and acquisition chain modelling. Depending on the application, noises, background and clutter effects, objects' and targets' fluctuations, propagation phenomena, must be understood, and often lead to difficult problems in the design of efficient processing methods.

The accuracy of the involved phenomena physical description, as well as its effective adaptation to a given processing technique becomes a challenge in many fields, like optics, acoustics, electromagnetisms, with applications in astronomy, biology, seismology, surveillance, etc... Adaptive techniques, which take into account possibly evolving information about the physics of the process and its environment, are for example promising.

The PSIP2007 conference will provide a detailed insight in this interaction between physics and signal and image processing, which will be presented in 20 mn conferences, poster sessions, as well as special topical sessions. Furthermore, invited lectures will be given on topics at the frontier between physics and signal and image processing.

This forum is an opportunity for specialists coming from different application fields and/or countries to meet and share their common interest in the suitability of physical models to information processing techniques, and is expected to generate ideas and innovations for further advances in the fast expanding domain of signal and image processing.

The proposed topics include, but are not limited to:

Signal and Image acquisition: Image formation and analysis; Tomography; HR imagery, Radar; Laser; Acoustic and seismic signals acquisition; New acquisition concepts and waveforms: hyper spectral, polarization, interferometry, radargrammetry, low frequencies, multistatism...

Modelling: Description and modelling of physical phenomena: radiation, flow, propagation, motion turbulence, scattering; Scenes and interferences modelling; Physical and stochastic models for sensor processing; Noise and disturbances modelling and synthesis; Scale-invariant phenomena...

Processing algorithms: Clutter, reverberation, background elimination; Motion estimation, motion elimination; Noise reduction; Separation of sources; Multidimensional processing (space-time, space-frequency, time-frequency, space-polarization); Stereo and array processing; 3D reconstruction; Sensor fusion, Detection, extraction, estimation; Tracking; Localization; Interpretation; Classification, recognition, identification; Optimization

This international event will be held at University of Haute-Alsace, Mulhouse, in the so-called three-corner region between France, Germany and Switzerland. Mulhouse is the European capital for technical museums (with the National Automobile Museum, the EDF Electropolis Museum, the Museum of Printed Textiles, the Train City, the Wallpaper Design Museum and the Bioscope), which will provide a unique opportunity for the attendees to combine scientific progress with techniques' history.

For this fifth edition, we would like to encourage contributions in physics in signal- and image processing for biological applications (from the unique cell to full-body scale), as well as for automotive applications.

Paper submission:

The submission of papers will be handled and reviewed electronically via the website <http://www.psip2007.uha.fr/>. Prospective authors are invited to submit a 2 pages extended abstract, as a .pdf file. See procedure and template on the website. For additional information and enquiries, please mail to psip2007@see.asso.fr or phone +33 1 56 90 37 03.

Important dates: Submission of extended abstract: **till September 30th, 2006**
 Notification of acceptance: October 15th, 2006
 Reception of final manuscript: November 30th, 2006

PSIP'2007 is sponsored by the following societies:

