Applied numerical analysis, digital image processing

English : these works are mainly concerned by applied numerical analysis to signal and image processing problems occuring in physical chemistry.

Français : Mes travaux dans le domaine de l'informatique concernent principalement le développement et l'implémentation de méthodes d'analyse numérique, de traitement du signal, de l'image en vue d'applications en chimie-physique (modélisation, simulation, traitement de données expérimentales).

Publications

- Optimization of an Hough transform algorithm for the search of a center. Julien Cauchie, Valérie Fiolet, Didier Villers, Pattern Recognition 41 (2008) 567 – 574. DOI : http://dx.doi.org/10.1016/j.patcog.2007.07.001
- A one-dimensional model for small-angle X-ray scattering from crystalline block copolymers. D. Villers, Acta Crystallographica Section A, 2003, A59, 132-137.
- Use of the Hough transform to determine the center of digitized X-ray diffraction patterns. C. Dammer, P. Leleux, D. Villers, M. Dosière, Nucl. Instr. and Meth. B, 1997, 132, 214-220.
- Coupled buoyancy and Marangoni convection in acetone : experiments and comparison with numerical simulations. D. Villers and J.K. Platten, Journal of Fluid Mechanics, vol. 234, pp 487-510, 1992.
- Influence of thermocapillarity on the oscillatory convection in low Pr fluids. D. Villers and J.K. Platten, in "Proc. GAMM Workshop on Numerical Simulation of Oscillatory Convection in Low Prandtl number Fluids", Notes on Numerical Fluid Mechanics, edited by B. Roux, Vieweg, Braunschweig, 1990.
- Thermocapillary convection when surface tension increases with temperature : comparison between numerical simulations and experimental results by LDV. D. Villers and J.K. Platten, in "Numerical Methods in laminar and turbulent flow", vol. 5, part 2, pp. 1268-1279, edited by C. Taylor, W.G. Habashi, M.M. Hafez. Pineridge Press, 1987.
- Intercalate with linear polymer host. Part IV. Structure of pC6H4XY polyoxyethylene intercalates from unit cell determination and energy minimization. J.J. Point, Cl. Coutelier and D. Villers, Journal of Physical Chemistry, vol 90, pp. 3277-3282, 1986.