

# Liste des publications / *Publications list*

Vincent Laude

November 23, 2010

## Revue à comité de lecture / *Peer-reviewed journals*

1. V. Laude, S. Mazé, P. Chavel, and Ph. Réfrégier, "Amplitude and phase coding measurements of a liquid crystal television," *Opt. Commun.* **103**, 33–38 (1993).
2. Ph. Réfrégier, B. Javidi, and V. Laude, "Non linear joint Fourier transform correlation: an optimal solution for adaptive image discrimination and input noise robustness," *Opt. Lett.* **19** (6), 405–407 (1994).
3. V. Laude and Ph. Réfrégier, "Multicriteria characterization of optimal Fourier spatial light modulator filters," *Appl. Opt.* **33** (20), 4465–4471 (1994).
4. Ph. Réfrégier and V. Laude, "Spatial fluctuations of optical fields modulated with spatial light modulators and noisy input signals," *J. Opt. Soc. Am. A* **12** (6), 1338–1345 (1995).
5. Ph. Réfrégier, V. Laude, and B. Javidi, "Basic properties of non-linear global filtering techniques and optimal discriminant solutions," *Appl. Opt.* **34** (20), 3915–3923 (1995).
6. F. Goudail, V. Laude, and Ph. Réfrégier, "Influence of nonoverlapping noise on regularized linear filters for pattern recognition," *Opt. Lett.* **20** (21), 2237–2239 (1995).
7. O. Durand, D. Dolfi, V. Laude, J.-P. Huignard, and J. Chazelas, "Optical architecture for adaptive filtering of microwave signals," *Opt. Lett.* **21** (11), 803–805 (1996).
8. A. Grunnet-Jepsen, S. Tonda, and V. Laude, "Convolution-kernel-based optimal trade-off filters for optical pattern recognition," *Appl. Opt.* **35** (20), 3874–3879 (1996).
9. V. Laude, P. Chavel, and Ph. Réfrégier, "Implementation of arbitrary real-valued correlation filters for the shadow-casting incoherent correlator," *Appl. Opt.* **35** (26), 5267–5274 (1996).
10. P. Tournois and V. Laude, "Negative group velocities in metal-film optical waveguides," *Opt. Commun.* **137**, 41–45 (1997).
11. V. Laude, "Diffraction analysis of pixelated incoherent shadow casting," *Opt. Commun.* **138**, 394–402 (1997).
12. D. Dolfi, J. Tabourel, O. Durand, V. Laude, J.-P. Huignard, and J. Chazelas, "Optical architectures for programmable filtering and correlation of microwave signals," *IEEE Trans. Microwave Theory Tech.* **MTT-45** (8), 1467–1471 (1997).
13. V. Laude and S. Formont, "Bayesian target location in images," *Opt. Eng.* **36** (10), 2649–2659 (1997).
14. V. Laude, "Twisted-nematic liquid crystal active lens," *Opt. Commun.* **153**, 134–152 (1998).
15. V. Laude and P. Tournois, "Superluminal asymptotic tunneling times through 1D photonic band gaps in quarter-wave-stack dielectric mirrors," *J. Opt. Soc. Am. B* **16** (1), 194–198 (1999).
16. V. Laude, A. Grunnet-Jepsen, and S. Tonda, "Input image spectral density estimation for real-time adaption of correlation filters," *Opt. Eng.* **38** (4), 672–676 (1999).
17. D. Delautre, S. Breugnot, and V. Laude, "Measurement of the sensitivity of heterodyne detection to aberrations using a programmable liquid-crystal modulator," *Opt. Commun.* **160**, 61–65 (1999).
18. V. Laude and C. Dirson, "Liquid-crystal active lens: application to image resolution enhancement," *Opt. Commun.* **163**, 72–78 (1999).
19. J. Colin, N. Landru, V. Laude, S. Breugnot, H. Rajbenbach, and J.-P. Huignard, "High-speed photorefractive joint-transform correlator using optimized nonlinear filters," *J. Opt. A* **1**, 283–285 (1999).
20. V. Laude, S. Olivier, C. Dirson, and J.-P. Huignard, "Hartmann wavefront scanner," *Opt. Lett.* **24** (24), 1796–1798 (1999).
21. F. Verluise, V. Laude, J.-P. Huignard, P. Tournois, and A. Migus, "Arbitrary dispersion control of ultrashort optical pulses using acoustic waves," *J. Opt. Soc. Am. B* **17** (1), 138–145 (2000).
22. F. Verluise, V. Laude, Z. Cheng, Ch. Spielmann, and P. Tournois, "Amplitude and phase control of ultrashort pulses by use of an acousto-optic programmable dispersive filter: pulse compression and shaping," *Opt. Lett.* **25** (8), 575–577 (2000).
23. S. Olivier, V. Laude and J.-P. Huignard, "Liquid-crystal Hartmann wavefront scanner," *Appl. Opt.* **39** (22), 3838–3846 (2000).
24. V. Laude, A. Khelif, Th. Pastureauud, and S. Ballandras, "Generally polarized acoustic waves trapped by high aspect ratio electrode gratings on piezoelectric substrates," *J. Appl. Phys.* **90** (5), 2492–2497 (2001).
25. S. Camou, Th. Pastureauud, D. Schenck, S. Ballandras, and V. Laude, "Guided elastic waves in GaN-over-Sapphire," *Electron. Lett.* **37** (16), 1053–1055 (2001).
26. V. Laude, "Noise analysis of the measurement of group-delay in Fourier white-light interferometric cross-correlation," *J. Opt. Soc. Am. B* **19** (5), 1001–1008 (2002).
27. Th. Pastureauud, V. Laude, and S. Ballandras, "Stable scattering-matrix method for surface acoustic waves in piezoelectric multilayers," *Appl. Phys. Lett.* **80** (14), 2544–2546 (2002).
28. M. Wilm, S. Ballandras, V. Laude, and T. Pastureauud, "A full 3-D plane-wave-expansion model for piezocomposite structures," *J. Acoust. Soc. Am.* **112** (3), 943–952 (2002).
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30. S. Ballandras, M. Wilm, P. F. Edoa, A. Soufyane, V. Laude, W. Steichen, and R. Lardat, "Finite element analysis of periodic piezoelectric transducers," *J. Appl. Phys.* **93** (1), 702–711 (2003).
31. V. Laude, M. Wilm, and S. Ballandras, "A least-action principle for the estimation of the slowness and the attenuation of pseudo surface acoustic waves," *J. Appl. Phys.* **93** (12), 10084–10088 (2003).

32. V. Laude and S. Ballandras, "Slowness curves and characteristics of surface acoustic waves propagating obliquely in periodic finite-thickness electrode gratings," *J. Appl. Phys.* **94** (2), 1235–1242 (2003).
33. M. Wilm, K. Khelif, S. Ballandras, V. Laude, and B. Djafari-Rouhani, "Out-of-plane propagation of elastic waves in two-dimensional phononic band-gap materials," *Phys. Rev. E* **67**, 065602(R) (2003).
34. S. Camou, V. Laude, Th. Pastureaud, and S. Ballandras, "Interface acoustic waves properties in some common crystal cuts," *IEEE Trans. Ultrason. Ferroelec. Freq. Control* **50** (10), 1363–1370 (2003).
35. A. Reinhardt, Th. Pastureaud, V. Laude, and S. Ballandras, "Scattering matrix method for acoustic waves in piezoelectric, fluid, and metallic multilayers," *J. Appl. Phys.* **94** (10), 6923–6931 (2003).
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37. V. Laude, "General solution of the coupled-wave equations of acousto-optics," *J. Opt. Soc. Am. A* **20** (12), 2307–2314 (2003).
38. A. Khelif, A. Choujaa, B. Djafari-Rouhani, M. Wilm, S. Ballandras, and V. Laude, "Trapping and guiding of acoustic waves by defect modes in a full-band-gap ultrasonic crystal," *Phys. Rev. B* **68**, 214301(R) (2003).
39. V. Laude, A. Reinhardt, M. Wilm, A. Khelif, and S. Ballandras, "Fast FEM/BEM Simulation of SAW Devices Via Asymptotic Waveform Evaluation," *IEEE Trans. Ultrason. Ferroelec. Freq. Control* **51** (3), 359–363 (2004).
40. A. Khelif, A. Choujaa, S. Benchabane, B. Djafari-Rouhani, and V. Laude, "Guiding and bending of acoustic waves in highly confined phononic crystal waveguides," *Appl. Phys. Lett.* **84** (22), 4400–4002 (2004).
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42. A. Reinhardt, V. Laude, A. Khelif, and S. Ballandras, "Dyadic Green's functions of a laminar plate," *IEEE Trans. Ultrason. Ferroelec. Freq. Control* **51** (9), 1157–1164 (2004).
43. V. Laude, M. Masson, S. Ballandras, and M. Solal, "Imaginary branches of surface acoustic wave slowness curves," *J. Appl. Phys.* **96** (11), 6895–6902 (2004).
44. S. Ballandras, T. Pastureaud, A. Reinhart, V. Laude, A. Soufyane, S. Camou, W. Steichen, W. Daniau, R. Lardat, M. Solal, and P. Ventura, "Simulations of SAW devices built on stratified media using a mixed finite element/boundary integral formulation," *J. Appl. Phys.* **96** (12), 7731–7741 (2004).
45. M. Solal, V. Laude, and S. Ballandras, "A P-matrix based model for SAW grating waveguides taking into account modes conversion at the reflection," *IEEE Trans. Ultrason. Ferroelec. Freq. Control* **51** (12), 1690–1696 (2004).
46. S. Ballandras, M. Wilm, W. Daniau, A. Reinhardt, V. Laude, and R. Armati, "Periodic finite element/boundary element modeling of capacitive micromachined ultrasonic transducers," *J. Appl. Phys.* **97** (3), 034901 (2005).
47. V. Laude, A. Khelif, S. Benchabane, M. Wilm, Th. Sylvestre, B. Kibler, A. Mussot, J. M. Dudley, and H. Maillotte, "Phononic bandgap guidance of acoustic modes in photonic crystal fibers," *Phys. Rev. B* **71**, 045107 (2005). Selected by the Virtual Journal of Nanoscale Science & Technology **11** (3) (2005).
48. V. Laude, M. Wilm, S. Benchabane, and A. Khelif, "Full band gap for surface acoustic waves in a piezoelectric phononic crystal," *Phys. Rev. E* **71**, 036607 (2005).
49. M. Wilm, A. Reinhardt, V. Laude, and S. Ballandras, "Three-dimensional modelling of micromachined-ultrasonic-transducer arrays operating in water," *Ultrasonics* **43** (6), 457–555 (2005).
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51. S. Benchabane, A. Khelif, A. Choujaa, B. Djafari-Rouhani, and V. Laude, "Interaction of waveguide and localized modes in a phononic crystal," *Europhys. Lett.* **71** (4), 570–575 (2005).
52. A. Khelif, A. Choujaa, S. Benchabane, B. Djafari-rouhani, and V. Laude, "Experimental study of guiding and filtering of acoustic waves in a two dimensional ultrasonic crystal," *Z. Kristallogr.* **220**, 836–840 (2005).
53. V. Laude, A. Reinhardt, and A. Khelif, "Equality of the energy and group velocities of bulk acoustic waves in piezoelectric media," *IEEE Trans. Ultrason. Ferroelec. Freq. Control* **52** (10), 1869–1871 (2005).
54. Y. Pennec, B. Djafari-Rouhani, J.O. Vasseur, H. Larabi, A. Khelif, A. Choujaa, S. Benchabane, and V. Laude, "Acoustic channel drop tunneling in a phononic crystal," *Appl. Phys. Lett.* **87**, 261912 (2005).
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58. P. Dainese, N. Joly, J.C. Knight, P.St.J. Russell, G. Wiederhecker, H. Fragnito, V. Laude, and A. Khelif, "Stimulated Brillouin scattering from multi-GHz-guided acoustic phonons in nanostructured photonic crystal fibres," *Nature Physics* **2** (6), 388–392 (2006). Selected by the Virtual Journal of Nanoscale Science & Technology **14** (8) (2006).
59. S. Benchabane, A. Khelif, J.-Y. Rauch, L. Robert, and V. Laude, "Evidence for complete surface wave band gaps in a piezoelectric phononic crystal," *Phys. Rev. E* **73** 065601(R) (2006).
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61. A. Khelif, B. Aoubiza, S. Mohammadi, A. Adibi, and V. Laude, "Complete band gaps in two-dimensional phononic crystal slabs," *Phys. Rev. E* **74**, 046610 (2006).
62. J.-C. Beugnot, Th. Sylvestre, H. Maillotte, G. Mélin, and V. Laude, "Guided acoustic wave Brillouin scattering in photonic crystal fibres," *Opt. Lett.* **32** (1), 17 (2007).
63. F.-L. Hsiao, A. Khelif, H. Moubchir, A. Choujaa, C.-C. Chen, and V. Laude, "Complete band gaps and deaf bands of triangular and honeycomb water-steel phononic crystals," *J. Appl. Phys.* **101**, 044903 (2007).

64. S. Ballandras, Th. Pastureaud, W. Steichen, W. Daniau, and V. Laude "High frequency surface acoustic waves excited on thin oriented LiNbO<sub>3</sub> single crystal layers transferred onto silicon," IEEE Trans. Ultrason. Ferroelec. Freq. Control. **84** (4), 870–876 (2007).
65. M. Wilm, A. Khelif, V. Laude, and S. Ballandras, "Design guidelines of 1-3 piezoelectric composites dedicated to ultrasound imaging transducers, based on frequency band-gap considerations," J. Acoust. Soc. Am. **122** (2), 786-793 (2007).
66. K. Kokkonen, M. Kaivola, S. Benchabane, A. Khelif, and V. Laude, "Scattering of surface acoustic waves by a phononic crystal revealed by heterodyne interferometry," Appl. Phys. Lett. **91**, 083517 (2007). Selected by the Virtual Journal of Nanoscale Science & Technology **16** (11) (2007).
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71. V. Laude, D. Gérard, N. Khelifaoui, C. F. Jerez-Hanckes, S. Benchabane, and A. Khelif, "Subwavelength focusing of surface acoustic waves generated by an annular interdigital transducer," Appl. Phys. Lett. **92**, 094104 (2008).
72. V. Y. Zhang and V. Laude, "Unified and stable scattering matrix formalism for acoustic waves in piezoelectric stacks," J. Appl. Phys. **104**, 064916 (2008).
73. S. Ballandras, R. Lardat, M. Wilm, Th. Pastureaud, A. Reinhardt, N. Champavert, W. Steichen, W. Daniau, V. Laude, R. Armati, G. Martin, "A mixed finite element/boundary element approach to simulate complex guided elastic wave periodic transducers," J. Appl. Phys. **105** (1), 014911 (2009).
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76. S. Benchabane, L. Robert, J.-Y. Rauch, A. Khelif, and V. Laude "Highly selective electroplated nickel mask for lithium niobate dry etching," J. Appl. Phys. **105** (9), 094109, doi:10.1063/1.3125315 (2009).
77. V. Laude, Younes Achaoui, Sarah Benchabane, and Abdelkrim Khelif, "Evanescent Bloch waves and the complex band structure of phononic crystals," Phys. Rev. B **80**, 092301 (2009).
78. Said Sadat-Saleh, Sarah Benchabane, Fadi I. Baida, Maria-Pilar Bernal, and Vincent Laude, "Tailoring simultaneous photonic and phononic band gaps," J. Appl. Phys. **106**, 074912; doi:10.1063/1.3243276 (2009).
79. M.B. Dürhing, V. Laude, and A. Khelif, "Improving surface acousto-optical interaction by high aspect ratio electrodes," J. Appl. Phys. **106**, 113518; doi:10.1063/1.3266017 (2009).
80. N. Courjal, S. Benchabane, J. Dada, G. Ulliac, Y. Gruson, and V. Laude, "Acousto-optically tunable lithium niobate photonic crystal modulator," Appl. Phys. Lett. **96**, 131103 (2010); doi:10.1063/1.3374886.
81. Y. Achaoui, A. Khelif, S. Benchabane, and V. Laude, "Polarization state and level repulsion in two-dimensional piezoelectric phononic crystals and waveguides," J. Phys. D: Appl. Phys. **43**, 185401 (2010).
82. A. Khelif, Y. Achaoui, S. Benchabane, and V. Laude, "Locally resonant surface acoustic wave band gaps in a two-dimensional phononic crystal of pillars on a surface," Phys. Rev. B **81**, 214303 (2010).
83. Y. Pennec, B. Djafari Rouhani, E.H. El Boudouti, C. Li, Y. El Hassouani, J.O. Vasseur, N. Papanikolaou, S. Benchabane, V. Laude, A. Martinez, "Simultaneous existence of phononic and photonic band gaps in periodic crystal slabs," Optics Express **18**(13), 14301 (2010).
84. A. Khelif, A. Choujaa, S. Benchabane, and V. Laude, "Octave complete band gap in a three-dimensional phononic crystal," IEEE Trans. Ultrason. Ferroelec. Freq. Control. **57**(7), 1621–1625 (2010).
85. V. Laude, B.M. Assouar, and Z. Hou, "Computation of plate wave dispersion diagrams and surface wave velocities without explicit boundary conditions," IEEE Trans. Ultrason. Ferroelec. Freq. Control. **57**(7), 1649–1654 (2010).
86. Dorian Gachon, Emilie Courjon, William Daniau, Hicham Majjad, Vincent Laude, and Sylvain Ballandras, "Prediction and Measurement of Boundary Waves at the Interface Between LiNbO<sub>3</sub> and Silicon," IEEE Trans. Ultrason. Ferroelec. Freq. Control. **57**(7), 1655-1663 (2010).
87. Y. El Hassouani, C. Li, Y. Pennec, E.H. El Boudouti, H. Larabi, A. Akjouj, O. Bou Matar, V. Laude, N. Papanikolaou, A. Martinez, and B. Djafari Rouhani, "Dual phononic and photonic band gaps in a periodic array of pillars deposited on a thin plate," Phys. Rev. B **82**, 155405 (2010).
88. I. E. Psarobas, N. Papanikolaou, N. Stefanou, B. Djafari-Rouhani, B. Bonello, and V. Laude, "Enhanced acousto-optic interactions in a one-dimensional phononic cavity," Phys. Rev. B **82**, 174303 (2010).

## Conférences invitées dans des congrès / Invited conferences

Le présentateur est souligné / *Presenter underlined*

1. Ph. Réfrégier and V. Laude, "Critical analysis of filtering techniques for optical pattern recognition: Are the solutions of this inverse problem stable?," in *Workshop on optical pattern recognition*, Ph. Réfrégier and B. Javidi, eds., SPIE Optical Engineering Press **PM12**, 58–84 (La Rochelle, 1994).
2. V. Laude and P. Tournois, "Superluminal tunneling times in layered media," *Laser Optics '98* (Saint Petersburg, 1998).
3. V. Laude, C. Dirson, D. Delautre, S. Breugnot, and J.-P. Huignard, "Applications of a liquid-crystal television used as an arbitrary quasi-phase modulator," in *Workshop on Optical Information Processing*, Ph. Réfrégier and B. Javidi, Eds., SPIE Optical Engineering Press **CR74**, (Colmar, 1999).

4. A. Reinhardt, V. Laude, L. Robert, S. Ballandras, M. Solal, and W. Steichen, "Numerical simulation of FBAR's," World Congress on Ultrasonics, 1487-1494 (Paris, 2003).
5. M. Solal, T. Abboud, S. Ballandras, S. Chamaly, V. Laude, R. Lardat, T. Pastureauud, J. Ribbe, W. Steichen, and P. Ventura, "FEM/BEM Analysis for SAW devices," Second Int. Symp. on Acoust. Wave Dev. for Future Mobile Comm. Syst., paper 3a2 (18 pages) on proceedings CD-ROM (Chiba, 2004).
6. S. Ballandras, W. Daniau, V. Laude, A. Khelif, W. Steichen, R. Lardat, Th. Pastureauud, N. Bodin, J. Hauden, and B. Biasse, "LiNbO<sub>3</sub> as a material for acousto-electric wave guide applications," Lithium Niobate from material to device, from device to system (Metz, 2005).
7. A. Reinhardt, V. Laude, and S. Ballandras, "Simulation of transverse effects in FBAR devices," IEEE International Microwave Symposium (Long Beach, 2005).
8. V. Laude, "Cristaux phononiques," 11<sup>èmes</sup> Journées Nano Micro Optoélectronique (Aussois, 2006).
9. S. Benchabane, A. Khelif, L. Robert, J. Y. Rauch, Th. Pastureauud, and V. Laude, "Elastic band gaps for surface modes in an ultrasonic lithium niobate phononic crystal," in *Photonic Crystal Materials and Devices III*, Proc. Soc. Photo.-Opt. Instrum. Eng. **6182**, 618216 (Strasbourg, France, 2006).
10. H. Maillotte, J.C. Beugnot, T. Sylvestre, G. Mélin, and V. Laude, "Strong Guided Acoustic Wave Brillouin Scattering in photonic crystal fibres," Second Technical Meeting "European COST 299 FIDES Workshop" (Nice, 2006).
11. S. Ballandras, V. Laude, H. Majjad, W. Daniau, D. Gachon, E. Courjon, "Prediction and Measurement of Boundary Waves at the Interface Between LiNbO<sub>3</sub> and Silicon," Third International Symposium on Acoustic Wave Devices for Future Mobile Communication Systems, paper 3A-1 (Chiba, Japan, 2007)
12. A. Khelif, F.-L. Hsiao, S. Benchabane, A. Choujaa, B. Aoubiza, and V. Laude, "Ultrasonic and hypersonic phononic crystals," in *Photonic Crystal Materials and Devices VII*, Proc. Soc. Photo.-Opt. Instrum. Eng. **6901**, 69010B-10 (2008).
13. V. Laude, B. Aoubiza, Y. Achaoui, S. Benchabane, and A. Khelif, "Evanescence Bloch waves in phononic crystals," Proc. SPIE 7223, 72230E (San Jose, USA, 2009).
14. J.-C. Beugnot, T. Sylvestre, É. Carry, H. Maillotte, G. Mélin, S. Lempereur, A. Fleureau, and V. Laude, "Role of microstructure on guided acoustic wave Brillouin scattering in photonic crystal fibers," in *Photonic Crystal Fibres*, Proc. Soc. Photo.-Opt. Instrum. Eng. **7357**, 73570S (Prague, May 2009); doi:10.1117/12.821100.
15. V. Laude, Y. Achaoui, S. Benchabane, and A. Khelif, "Complex Band Structure of Phononic Crystals and the Diffraction Problem," Proceedings of the IUTAM Symposium on Recent Advances of Acoustic Waves in Solids, Springer, IUTAM Book-series vol. 26, 165–173 (Taipei, May 2009)
16. A. Khelif, A. Choujaa, S. Benchabane, and V. Laude, "Omnidirectional Band Gap Mirror for Surface Acoustic Wave," Proceedings of the IUTAM Symposium on Recent Advances of Acoustic Waves in Solids, Springer, IUTAM Bookseries vol. 26, 187–192 (Taipei, May 2009)
17. V. Laude, "Plane wave expansion method for phononic crystals: review and prospects," International Workshop on Phononic Crystals (Nice, France, June 2009).
18. S. Benchabane, J.-C. Beugnot, S. Sadat Saleh, M.-P. Bernal, T. Sylvestre, H. Maillotte and V. Laude, "Les matériaux à bandes interdites phononiques," Journées Nationales d'Optique Guidée (Lille, July 2009).
19. V. laude, "Phononics, phononic crystals, and beyond," in IEEE International Ultrasonics Symposium (Rome, Italy, September 2009).
20. V. Laude, "Phononic crystals in micro and nano-acoustics," MicroNanoacoustics Workshop (Prato, Italy, September 2009).
21. S. Benchabane, S. Sadat-Saleh, M.-P. Bernal, F. I. Baida, and V. Laude, "Towards phoXonic crystals," META'10 Second International conference on metamaterials, photonic crystals and plasmonics (Cairo, Egypt, 22-25 February 2010).
22. V. Laude, "Phoxonics," *keynote paper*, ICREA Workshop on Phonon Engineering (Sant Felui de Guixols, Girona, Spain, May 2010).

## Proceedings à comité de lecture / *Conference proceedings*

Le présentateur est souligné / *Presenter underlined*

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