

# Liste des publications et communications scientifiques

G. Soriano

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## Articles dans des revues à comité de lecture

- [1] Immediate and one-point roughness measurements using spectrally shaped light, X. Buet, M. Zerrad, M. Lequime, G. Soriano, J.-J. Godeme, J. Fadili, C. Amra, *Optics Express*, 2022
- [2] Terahertz probing of sunflower leaf multilayer organization, Y. Abautret, D. Coquillat, M. Zerrad, X. Buet, R. Bendoula, G. Soriano, N. Brouilly, D. Héran, B. Grèzes-Besset, F. Chazallet, C. Amra, *Optics Express* (28), pp35018-35037, 2020
- [3] Black paints covered with multielectrics: light absorbers, G. Soriano, M. Zerrad, C. Amra, *Optics Express* (28), pp16857-16868, 2020
- [4] Anti-scattering effect analyzed with an exact theory of light scattering from rough multilayers, G. Soriano, M. Zerrad, C. Amra, *Optics Letters* (44), pp4455-4458, 2019
- [5] Inverse Wave Scattering of Rough Surfaces with Emitters and Receivers in the Transition Zone, S. Arhab, G. Soriano, *Progress In Electromagnetics Research M*, Vol. 45, pp131-141, 2016
- [6] Analogies between optical propagation and heat diffusion: applications to microcavities, gratings and cloaks, C. Amra, D. Petiteau, M. Zerrad, S. Guenneau, G. Soriano, B. Gralak, M. Bellieud, D. Veynante, N. Rolland, *Proc. R. Soc. A* 471: 20150143, 2015
- [7] Speckle intensity statistics for chromatic scattering media under partially polarized illumination, G. Soriano, M. Zerrad, C. Amra, *Optics Express* (23), pp20796-20803, 2015
- [8] Spatial depolarization of light from the bulks: electromagnetic prediction, M. Zerrad, H. Tortel, G. Soriano, A. Ghabbach, C. Amra, *Optics Express* (23), pp8246-8260, 2015
- [9] Rigorous simulations of microwave scattering from finite conductivity two-dimensional sea surfaces at low-grazing angles, D. Miret, G. Soriano, M. Saillard, *IEEE Trans. Geoscience Remote Sensing*, vol. 52, pp3150-3158, 2014
- [10] Sea surface microwave scattering at extreme grazing angle: numerical investigation of the Doppler shift, D. Miret, G. Soriano, F. Nouguier, P. Forget, M. Saillard, C.-A. Guerin, *IEEE Trans. Geoscience Remote Sensing*, vol. 52, pp7120-7129, 2014
- [11] Polarization analysis of speckle field below its transverse correlation width : application to surface and bulk scattering, J. Dupont, X. Orlik, A. Ghabbach, M. Zerrad, G. Soriano, C. Amra, *Optics Express* (22), pp24133-24141, 2014
- [12] Depolarization and enpolarization DOP histograms measured for surface and bulk speckle patterns, A. Ghabbach, M. Zerrad, G. Soriano, S. Liukaityte, C. Amra, *Optics Express* (22), pp21427-21440, 2014
- [13] Accurate metrology of polarization curves measured at the speckle size of visible light scattering, A. Ghabbach, M. Zerrad, G. Soriano, C. Amra, *Optics Express* (22), pp14594-14609, 2014
- [14] Enpolarization and depolarization of light scattered from chromatic complex media, G. Soriano, M. Zerrad, C. Amra, *Optics Express* (22), pp12603-12613, 2014
- [15] Nanometric resolution with far-field optical profilometry, S. Arhab, G. Soriano, Y. Ruan, G. Maire, A. Talneau, D. Sentenac, P. Chaumet, K. Belkebir, H. Giovannini, *Phys. Rev. Lett* (111), 053902, 2013
- [16] Mapping the coherence time of far-field speckle scattered by disordered media, G. Soriano, M. Zerrad, C. Amra, *Optics Express* (21), pp 24191–24200, 2013
- [17] Light enpolarization by disordered media under partial polarized illumination: the role of cross-scattering coefficients, M. Zerrad, G. Soriano, A. Ghabbach, C. Amra, *Optics Express* (21), pp 2787–2794, 2013
- [18] Full polarization optical profilometry, S. Arhab, G. Soriano, K. Belkebir, H. Giovannini, *J. Opt. Soc. Amer. A* (29), pp1508-15, 2012

- [19] Enpolarization of light by scattering media, J. Sorrentini, M. Zerrad, G. Soriano, C. Amra, *Optics Express* (19), pp21313-20, 2011
- [20] Rough surface scattering at grazing incidence: a dedicated model, G. Soriano, M. Saillard, *Radio Science* (46), RS0E13, 2011
- [21] Analytical techniques for the Doppler signature of sea surfaces in the microwave regime - I: linear surfaces, F. Nouguier, C.-A. Guérin, G. Soriano, *IEEE Trans. Geoscience and Remote Sensing* (49), pp4856-64, 2011
- [22] Analytical techniques for the Doppler signature of sea surfaces in the microwave regime - II: nonlinear surfaces, F. Nouguier, C.-A. Guérin, G. Soriano, *IEEE Trans. Geoscience and Remote Sensing* (49), pp4920-27, 2011
- [23] Full wave optical profilometry, S. Arhab, G. Soriano, K. Belkebir, A. Sentenac, H. Giovannini, *J. Opt. Soc. Amer. A* (28), pp 576-580, 2011
- [24] Gradual loss of polarization in light scattered from rough surfaces: Electromagnetic prediction, M. Zerrad, J. Sorrentini, G. Soriano and C. Amra, *Optics Express* (18), pp 15832-15843, 2010
- [25] Low-grazing angles scattering of electromagnetic waves from one-dimensional natural surfaces: rigorous and approximate theories, G. Soriano, P. Spiga, M. Saillard, *C. R. Physique* (11), pp77-86, 2010
- [26] The Weighted Curvature Approximation in scattering from sea surfaces, C.-A. Guérin, G. Soriano, *Waves in Random and Complex Media* (20), pp363-384, 2010
- [27] Scattering of electromagnetic waves from rough surfaces: a boundary integral method for low-grazing angles, P. Spiga, G. Soriano, M. Saillard, *IEEE Trans. Antennas Propag.* (56), pp2043-2050, 2008
- [28] A cut-off invariant two-scale model in electromagnetic scattering from sea surfaces, G. Soriano, C.-A. Guérin, *IEEE Geophys. Remote Sensing Letters* (5), pp199-203, 2008
- [29] Doppler spectrum from two-dimensional ocean surface at microwave frequency, G. Soriano, M. Joelson, M. Saillard, *IEEE Trans. Geoscience and Remote Sensing* (44), pp2430-2437, 2006
- [30] Sea surface probing with L-band Doppler radar: experiment and theory, M. Saillard, P. Forget, G. Soriano, M. Joelson, P. Broche, P. Currier, *C.R. Physique* (6), pp: 675-682, 2005
- [31] Weighted Curvature Approximation: numerical tests for 2D dielectric surfaces, C.-A. Guérin, T. Elfouhaily, G. Soriano, *Waves in Random Media* (14), p349-363, 2004
- [32] Fast numerical solution for scattering from rough surfaces with small slopes, M. Saillard, G. Soriano, *IEEE Trans. Antennas Propag.* (52), pp2799-2801, 2004
- [33] Modelization of the scattering of electromagnetic waves from the ocean surface, G. Soriano, M. Saillard, *Progress In Electromagnetic Research X*, Chapter 4, pp102-128, EMW Publishing, 2003
- [34] Scattering by two-dimensional rough surfaces: comparison between the Method of Moments, the Kirchhoff and the Small-Slope Approximation, G. Soriano, C.-A. Guérin, M. Saillard, *Waves in Random Media* (12), p63, 2002
- [35] Scattering of electromagnetic waves from two-dimensional rough surfaces with impedance approximation, G. Soriano, M. Saillard, *J. Opt. Soc. Amer. A* (18), pp124-133, 2001

### **Autres publications, dont actes de congrès**

- [36] Modélisation électromagnétique : applications à la télédétection océanique et à la diffusion optique, Gabriel Soriano, Habilitation à Diriger des Recherches, Aix-Marseille Université, France, 2014
- [37] Scattering from rough surface with small slopes, Soriano G., Saillard M., *Wave Propagation, Scattering and Emission in Complex Media*, pp128-133, Editor Ya-Qiu Jin, Science Press and World Scientific, 2004
- [38] Simulation of microwave scattering from wind-driven ocean surfaces, Xia M.Y., Chan C.H., Soriano G., Saillard M., *Wave Propagation, Scattering and Emission in Complex Media*, pp139-150, Editor Ya-Qiu Jin, Science Press and World Scientific, 2004
- [39] Etude de la diffraction électromagnétique par des surfaces rugueuses bidimensionnelles, G. Soriano, dir. M. Saillard, thèse de Physique, Université Paul Cezanne Aix-Marseille, France, 2001
- [40] Méthodes numériques pour les problème de diffraction à grand nombre de degrés de liberté, G. Soriano, dir. M. Saillard et P. Vincent, rapport de stage pour le DEA d'Optique, Image, Signal, Université Paul Cezanne Aix-Marseille, France, 1996

## Conférences invitées

- [41] S. Arhab, G. Soriano, K. Belkebir, A. Sentenac, and H. Giovannini, High resolution optical profilometry using diffractive tomographic microscopy, Progress in Electromagnetics Research Symposium, Marrakesh, March 2011
- [42] G. Soriano, C.-A. Guérin, M. Saillard, Microwave Ocean Scattering at Low-Grazing Angles with the GMoM, European radar Conference, Paris, September 2010
- [43] P. Spiga, G. Soriano, M. Saillard, Modelling surface scattering at grazing incidence, International Radar Conference, Bordeaux, October 2009
- [44] P. Spiga, G. Soriano, M. Saillard, Scattering from rough surfaces at low-grazing angles: rigorous solution for local perturbation of a plane interface, Asian Pacific Microwave Conference, Hong Kong, December 2008
- [45] M. Saillard, G. Soriano, Approximate boundary integral equations for time-harmonic rough surface scattering, International Workshop on Wave Propagation, Scattering and Emission, Shanghai, June 2003
- [46] M. Saillard, G. Soriano, C. A. Guérin, Rough surface scattering: comparison of approximate methods with a boundary integral method, URSI National Radio Science Meeting 102.5, Columbus, Ohio, June 2003
- [47] M. Y. Xia, C. H. Chan, L. Tsang, M. Saillard, G. Soriano, Recent developments on 3D modeling of random rough surfaces, International Union of Radio Science 17th General Assembly, Maastricht, August 2002
- [48] G. Soriano, M. Saillard, An improved bistatic two-scale model for the ocean surface scattering, International Union of Radio Science 17th General Assembly, Maastricht, August 2002

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- [49] G. Soriano, M. Zerrad, C. Amra, The boundary integral equation method for the EM scattering from randomly rough multilayers, Photonics and Electromagnetics Research Symposium, June 2019, Rome
- [50] G. Soriano, M. Zerrad, C. Amra, The boundary integral equation method for the wave scattering from randomly rough surfaces, 4th Workshop on Seismic Metamaterials, April 2019, Marseille
- [51] G. Soriano, M. Zerrad, C. Amra, A spectral model for the bulk-and-surface speckle polarization, 2nd Joensuu Conference on Coherence and Random Polarization, June 2018, Joensuu.
- [52] G. Soriano, M. Zerrad, C. Amra, A spectral model for the speckle temporal coherence, 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Malaga, July 2016.
- [53] G. Soriano, M. Zerrad, C. Amra, Partially polarized speckle of light scattered from depolarizing media, Frontiers in Optics, Rochester, October 2016.
- [54] Claude Amra, Michel Bellieud, Ahmed Alwakil, Myriam Zerrad, David Petiteau, Sébastien Guenneau, D. Veynante, Franck Enguehard, Nathalie Rolland, Michel Friezel, Shane Cooper, Hassan Akhouayri, Gabriel Soriano, Andre Diatta, Heat flow with thermal metamaterials, Spectral Theory of Novel Materials, CIRM, Apr 2016, Marseille, France
- [55] Claude Amra, Myriam Zerrad, Gabriel Soriano, Ayman Ghabbach, Polarization signatures of light in disordered media, International Symposium on 3D Imaging, Metrology, and Data Security, Sept 2015, Shenzhen, China
- [56] G. Soriano, M. Zerrad, X. Orlik, A. Ghabbach, S. Liukaityte, J. Dupont, and C. Amra, Light Enpolarization and Depolarization: Bulk and Surface Scattering, Progress In Electromagnetics Research Symposium, July 2015, Prague
- [57] A. Alwakil, G. Soriano, K. Belkebir, H. Giovannini, S. Arhab, Direct and Iterative Inverse Wave Scattering Methods for Time-Harmonic Far-Field Profilometry, IEEE International Conference on Antenna Measurements & Applications, November 2014, Antibes Juan-les-pins
- [58] S. Angelliaume, V. Fabbro, G. Soriano, C.-A. Guérin, The GO-SSA extended model for all-incidence sea clutter modeling, International Geoscience and Remote Sensing Symposium, July 2014, Quebec
- [59] D. Miret, P. Spiga, G. Soriano, M. Saillard, Modelization of low-grazing angles microwave sea surface scattering cross-section, OCOSS, September 2013, Nice
- [60] G. Soriano, M. Zerrad, C. Amra, The temporal coherence of light altered by scattering, Correlation Optics, Chernivtsi, September 2013
- [61] D. Miret, G. Soriano, M. Saillard, F. Nougier, C.-A. Guérin, The locally perturbed model for the scattering of electromagnetic waves from finite conductivity two-dimensional rough surfaces, IEEE International Symposium on Antennas and Propagation, July 2013, Orlando

- [62] D. Miret, G. Soriano, M. Saillard, F. Nouguier, C.-A. Guérin, Modelization of microwave Doppler spectrum from nonlinear ocean profiles at grazing angles, IEEE International Symposium on Antennas and Propagation, July 2013, Orlando
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- [64] D. Miret, M. Saillard, G. Soriano, Numerical simulation of sea surface microwave remote sensing at grazing incidence, International Geoscience and Remote Sensing Symposium, Munich, July 2012
- [65] G. Soriano, F. Nouguier, C.-A. Guérin, Analytical prediction of the polarized Doppler spectrum from nonlinear ocean surface at microwave frequency, International Union of Radio Science 30th General Assembly and Scientific Symposium, Istanbul, August 2011
- [66] S. Arhab, G. Soriano, K. Belkebir, H. Giovannini, Reconstruction of a rough surface profile with an iterative method based on a rigorous direct wave scattering model, International Union of Radio Science 30th General Assembly and Scientific Symposium, Istanbul, August 2011
- [67] V. Brissonneau, L. Escoubas, G. Soriano, F. Flory, G. Maire, and G. Berginc, Design and Fabrication of Random Optical Surfaces by a Modified Speckle-based Method, Progress in Electromagnetics Research Symposium, Marrakesh, March 2011
- [68] M. Saillard, G. Soriano, Scattering from Rough Surfaces at Low Grazing Incidence, 4th European Conference on Antennas and Propagation, Barcelona, April 2010
- [69] G. Soriano, M. Saillard, C.-A. Guérin, Computational issues in microwave emissivity of the sea surface, PASSIVE'08 , Hyères, October 2008
- [70] G. Soriano, C.-A. Guérin, A cut-off invariant two-scale model in electromagnetic scattering from sea surfaces, North America Radio Science Meeting, Ottawa, July 2007
- [71] G. Soriano, M. Saillard, M. Joelson, Computation of Doppler spectra in the microwave range: which model for sea surface?, IGARSS'07, Barcelona, July 2007
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- [78] Xia M.Y., Chan C.H., Soriano G., Saillard M., Simulation of microwave scattering from wind-driven ocean surfaces, International Workshop on Wave Propagation, Scattering and Emission, Shanghai, 2003, annulé pour cause de SRAS
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- [81] G. Soriano, M. Saillard, Rigorous solution of scattering by two-dimensional randomly rough surfaces, Progress in Electromagnetics Research Symposium, Cambridge, July 2000
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- [84] G. Soriano, M. Zerrad, C. Amra, Le formalisme intégral de frontière pour la diffraction des ondes par des multicouches rugueux, Advanced theoretical and numerical methods for waves in structured media, Marseille, Juin 2019
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- [88] G. Soriano, S. Arhab, Y. Ruan, G. Maire, A. Talneau, D. Sentenac, P. Chaumet, K. Belkebir, H. Giovannini, Vers une résolution latérale nanométrique en profilométrie optique à champ lointain, Assemblée Générale du GdR Ondes, Dijon, Octobre 2013
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- [92] D. Miret, G. Soriano, J.-M. Elissalt, M. Saillard, Modélisation de la diffraction des microondes pour la télédétection océanique en incidence rasante, Assemblée générale du GdR Ondes, Nice, Octobre 2011
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- [96] G. Soriano, P. Spiga, M. Saillard, Interaction onde-surface rugueuse en incidence rasante, Assemblée générale du GdR Ondes, Pessac, Novembre 2007
- [97] M. Saillard, G. Soriano, Interaction onde électromagnétique - onde de gravité, Assemblée générale du GdR Ondes, Pessac, Novembre 2007
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## Brevets

- [99] M. Zerrad, G. Soriano, C. Amra, Gamma speckle, V/Ref : ICG30195 FR, May 2015.