

## PUBLICATIONS

### Original papers

- [1] Alejandro Martínez, Raquel García, Andreas Håkansson, Miguel A. Piqueras, and José Sánchez-Dehesa “Electromagnetic beaming from omnidirectional sources by inverse design”, *Appl. Phys. Lett.* Vol. 92 051105 (2008)
- [2] Andreas Håkansson and Hideki T. Miyazaki, “Inverse Design of Microelectromechanically Controlled Scattering Optical Elements”, *Japanese Journal of Applied Physics*, Vol. 46, No. 24, 2007, pp. L580–L583 (2007)
- [3] Andreas Håkansson, Daniel Torrent, Francisco Cervera, and José Sánchez-Dehesa, “Directional acoustic source by scattering acoustical elements”, *Appl. Phys. Lett.* Vol. 90, 224107 (2007)
- [4] Andreas Håkansson, “Cloaking of objects from electromagnetic fields by inverse design of scattering optical elements”, *Optics Express* 15, 4328 (2007)
- [5] Andreas Håkansson, Hideki T. Miyazaki, and José Sánchez-Dehesa, “Full Control of Spontaneous Emission using Inverse Designed Light Emitting Scattering Optical Elements”, *Phys. Rev. Lett.* 96, 153902 (2006)
- [6] Andreas Håkansson, José Sánchez-Dehesa, and Francisco Cervera, “Experimental realization of sonic demultiplexing devices based on inverse-designed scattering acoustic elements”, *Appl. Phys. Lett.* 88, 163506 (2006)
- [7] Daniel Torrent, Andreas Håkansson, Francisco Cervera and José Sánchez-Dehesa, “Homogenization of Two-Dimensional Clusters of Rigid Rods in Air”, *Phys. Rev. Lett.* 96, 204302 (2006)
- [8] Andreas Håkansson and José Sánchez-Dehesa, “Optimal design of microscaled optical elements”, *Appl. Phys. Lett.* Vol. 87, 193506 (2005)  
*Other appearances:* This work was reviewed in *EUROPHOTONICS* December/January 2006 Issue.
- [9] Andreas Håkansson, Pablo Sanchis, José Sánchez-Dehesa, and Javier Marti, “High efficiency defect-based photonic-crystal-tapers designed by a genetic algorithm”, *Journal of Lightwave Technology*, Vol 23 (11), pp. 3881-3888 (2005)
- [10] Andreas Håkansson and José Sánchez-Dehesa, “Inverse designed photonic crystal demultiplex waveguide coupler” *Optics Express* 13, 5440-5449 (August-2005)
- [11] Andreas Håkansson, José Sánchez-Dehesa and Lorenzo Sanchis, “Inverse design of photonic crystal devices”, *IEEE J. Sel. Area Comm* 23 (7): 1365-1371 (2005).
- [12] Andreas Håkansson, Francisco Cervera, and José Sánchez-Dehesa, “Sound focusing by flat acoustic lenses without negative refraction”, *Appl. Phys. Lett.* Vol. 86, Art. No. 054102, pp. 1-3 (2005),  
*Other appearances:* This work was reviewed in *Technology Research News* (<http://www.trnmag.com>), Issue: February 9/16, 2005, “Rod arrays focus sound”
- [13] Andreas Håkansson, José Sánchez-Dehesa, Francisco Cervera, Francisco Meseguer, Lorenzo Sanchis and Jaime Linares, “Comment on ‘Theory of tailoring sonic devices: Diffraction dominates over refraction’”, *Phys. Rev. E.*, Vol. 71, Art. No. 018601, pp. 1-2 (2005)
- [14] Andreas Håkansson, José Sánchez-Dehesa and Lorenzo Sanchis, “Acoustic lens design by genetic algorithms”, *Phys. Rev. B.*, Vol. 70, Art. No 214302, pp. 1-9 (2004)
- [15] Betsabe Manzanares-Martínez, José Sánchez-Dehesa, Andreas Håkansson, Francisco Cervera and Felipe Ramos-Mendieta, Experimental evidence of omnidirectional elastic bandgap in finite one-dimensional phononic systems, *Appl. Phys. Lett.*, Vol. 85, No. 1, pp.154-156 (2004),  
*Other appearances:* This paper was selected to appear in *Virtual J. of Nanoscale Science &*

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- [16] Lorenzo Sanchis, Andreas Håkansson, Daniel López-Zanón, Jorge Bravo-Abad, and José Sánchez-Dehesa, "Integrated optical devices design by genetic algorithm", *Appl. Phys. Lett.*, Vol. 84, No. 22, pp. 4460-4462 (2004)
- [17] Lorenzo Sanchis, Andreas Håkansson, Francisco Cervera and José Sánchez-Dehesa, "Acoustic interferometers based on two-dimensional arrays of rigid cylinders in air", *Phys. Rev. B*, Vol. 67, Art. No. 035422, pp.1-11 (2003)

### Proceedings

- [18] A. Håkansson, S. Boscolo and M. Midrio, "Complete 3D inverse design tool for dielectric slab based Scattering Optical Elements" , International Symposium on Photonic and Electromagnetic Crystal Structures VII, Monterey, CA, U.S. (2007)
- [19] A. Håkansson and H. T. Miyazaki, "Inverse design beyond Photonic Crystals – An introduction to Scattering Optical Elements" , International Symposium on Photonic and Electromagnetic Crystal Structures VII, Monterey, CA, U.S. (2007)
- [20] A. Martinez, A. Håkansson, M. A Piqueras, R. Garcia, and J. Sanchez-Dehesa, "Highly-directional sources by periodic and non-periodic dielectric rods", International Symposium on Photonic and Electromagnetic Crystal Structures VII, Monterey, CA, U.S. (2007)
- [21] Andreas Håkansson and José Sánchez-Dehesa, "Optimal design of a micro-scaled demultiplexer", International Symposium on Photonic and Electromagnetic Crystal Structures VI, Aghia Pelaghia, Crete, Greece (2005)
- [22] Pablo Sanchis, Andreas Håkansson, José Sánchez-Dehesa, and Javier Marti," High efficiency defect-based photonic-crystal-tapers designed by a genetic algorithm", International Symposium on Photonic and Electromagnetic Crystal Structures VI, Aghia Pelaghia, Crete, Greece (2005)
- [23] F. Cuesta-Soto, B. García-Baños, A. Håkansson, J. García, P. Sanchís and J. Martí," Intermodal dispersion compensation in a PhC directional coupler", International Symposium on Photonic and Electromagnetic Crystal Structures V, Aghia Pelaghia, Crete, Greece (2005)
- [24] Andreas Håkansson, Lorenzo Sanchis and José Sánchez-Dehesa, "PC wave-guide coupler design by a genetic algorithm", Int. Symposium on Photonic and Electromagnetic Crystal Structures V (PECS V) in Kyoto, Japan (2004)

### Oral presentiaions

- [25] Andreas Håkansson, Hideki T. Miyazaki and Jose Sanchez-Dehesa,"Inverse design beyond photonic crystals; an introduction to scattering optical elements", SPIE Photonic West, San Jose, U.S.A. (2007)
- [26] Andreas Håkansson and José Sánchez-Dehesa. ,"Proposals of inverse designed microscaled scattering optical elements. ",SPIE Photonic Crystals Materials and devices (Photonics Europe 2006), Strasbourg, France, (2006). (invited talk).
- [27] José Sánchez-Dehesa, A. Håkansson and Francisco Cervera. ," Optimal design of Scattering Acoustical Elements.", World Congress on Ultrasonics and Ultrasonic International (WCU-UI'05). Beijing, China (2005). (invited talk).
- [28] Daniel Torrent , Andreas Håkansson , and José Sánchez-Dehesa," Sound attenuation by lattices of rigid elliptic cylinders", *J. Acoust. Soc. Am.* 117 , 2528 (2005), 149th meeting of the Acoustical Society of America, Vancouver, Canada (2005)
- [29] Miguel Figueres , Francisco Cervera , Andreas Håkansson , José Sánchez-Dehesa , and Jaime Linares,"Sound scattering by clusters of rigid cylinders in air" *J. Acoust. Soc. Am* 117, 2483 (2005) 149th meeting of the Acoustical Society of America, Vancouver, Canada (2005)
- [30] Jose Sanchez-Dehesa, Andreas Håkansson, and Lorenzo Sanchis, "Inverse design of

- photonic devices by using a genetic algorithm”, Proc. SPIE Int. Soc. Opt. Eng., Vol. 5450, pp. 200-206 (2004), International Society in Optical Engineering (SPIE), photonic crystals materials and nanostructures in Strasbourg, France (2004)
- [31] Andreas Håkansson, José Sánchez-Dehesa, and Lorenzo Sanchis, “Engineering acoustic lenses with help from evolution”, J. Acoust. Soc. Am., Vol. 115, pp. 2588 (2004), Acoustic Society of America’s 75<sup>th</sup> anniversary meeting in New-York, U.S.A. (2004).
- [32] José Sánchez-Dehesa, Andreas Håkansson, Francisco Cervera, Francisco Meseguer, Betsabé Manzanares-Martínez, and Felipe Ramos-Mendieta, “Acoustical phenomenon in ancient Totonac’s monument”, J. Acoust. Soc. Am. 115, 2582 (2004), Acoustic Society of America’s 75<sup>th</sup> anniversary meeting in New-York, U.S.A. (2004)
- [33] Betsabé Manzanares-Martínez, José Sánchez-Dehesa, Andreas Håkansson, Francisco Cervera, and Felipe Ramos-Mendieta, “Omnidirectional elastic bandgap in finite one-dimensional phononic systems”, J. Acoust. Soc. Am., Vol. 115, pp. 2626 (2004), Acoustic Society of America’s 75<sup>th</sup> anniversary meeting in New-York, U.S.A. 2004 (2004)
- [34] José Sánchez-Dehesa, Andreas Håkansson and Lorenzo Sanchis, “Focusing sound by a flat acoustic lens”, International Symposium on Photonic and Electromagnetic Crystal Structures V (PECS V) in Kyoto, Japan (2004)
- [35] Andreas Håkansson, Lorenzo Sanchis, David López-Zanón, Jorge Bravo-Abad and José Sánchez-Dehesa, “Integrated optical devices design by genetic algorithms”, Genetic and Evolutionary Computation Conference – GECCO 2003 in Chicago, U.S.A (2003)  
Other appearances: This work was selected to be presented at the 2003 Genetic and Evolutionary Computation Conference Workshop Program, Title: “Using Evolutionary Computation to design Integrated Optical Devices”, Book of abstracts, pp. 288-291 (2003)
- [36] Betsabé Manzanares-Martínez, José Sánchez-Dehesa, Andreas Håkansson, Francisco Cervera, and Felipe Ramos-Mendieta, “Omnidirectional elastic bandgap in finite one-dimensional phononic crystals”, Ultrasonic international 2003 in Granada, Spain (June – 2003)
- [37] Andreas Håkansson, José Sánchez-Dehesa, Lorenzo Sanchis, and Francisco Cervera, “Acoustical properties of finite sonic crystals slabs”, J. Acoust. Soc. Am., Vol. 112, pp. 2439 (2002), First Pan-America /Iberian Meeting on Acoustics. 144<sup>th</sup> Meeting of the Acoustical Society of America in Cancún, Mexico (November - 2002)

### Patents

- [38] J. Sánchez-dehesa, A. Håkansson and L. Sanchis., “Convertidor óptico” Spanish patent, Application No.:P200301614 (7), Filing Date: September 01, 2005