

Publications

Revues Internationales

1. M. Majnooni, E. Doveri, J. Baldisser, V. Long, J. Houles, J-C. Scimeca, D. Momier, C. Guivier-Curien, P. Lasaygues, C. Baron, 2022. *Anti-Reflection Cover to Control Acoustic Intensity in In-Vitro Low-Intensity Ultrasound Stimulation of Cells*. Acta Acustica 6.
2. M. Majnooni, P. Lasaygues, V. Long, J-C. Scimeca, D. Momier, F. Rico, N. Buzhinsky, C. Guivier-Curien, C. Baron, 2022. *Monitoring of in-vitro ultrasonic stimulation of cells by numerical modeling*. Ultrasonics 124, 106714.
3. E. Doveri, M. Majnooni, C. Guivier-Curien, P. Lasaygues, C. Baron, 2021. *Numerical Model for In-Vitro Ultrasound Stimulation of Bone Cells : A Parametric Study*. Computer Methods in Biomechanics and Biomedical Engineering 24, S228.
4. C. Baron, V.-H. Nguyen, S. Naili, C. Guivier-Curien, 2020. *Interaction of ultrasound waves with bone remodelling : a multiscale computational study*. Journal of Biomechanics and Modeling in Mechanobiology 19, 1755-1764.
5. E. Lefèvre, C. Baron, E. Gineyts, Y. Bala, H. Gharbi, J-M. Allain, P. Lasaygues, M. Pithioux, H. Follet., 2020. *Ultrasounds could be considered as a future tool for probing growing bone properties..* Scientific Reports 10, 15698.
6. E. Lefèvre, D. Farlay, Y. Bala, F. Subtil, U. Wolfram, S. Rizzo, C. Baron, P. Zysset, M. Pithioux, H. Follet, 2019. *Compositional and mechanical properties of growing cortical bone tissue : a study of the human fibula*. Scientific Reports 9, 17629.
7. M. Semaan, E. Karam, C. Baron, M. Pithioux, 2019. *Estimation of the elastic modulus of child cortical bone specimens via microindentation*. Connective Tissue Research 60, 1-7.
8. M. Semaan, P. Mora, S. Bernard, F. Launay, C. Payan, P. Lasaygues, M. Pithioux, C. Baron, 2019. *Assessment of elastic properties of child cortical bone specimens via resonant ultrasound spectroscopy*. Journal of the Mechanical Behavior of Biomedical Materials 90, 40-44.
9. Y. Bala, E. Lefèvre, J-P. Roux, C. Baron, P. Lasaygues, M. Pithioux, V. Kaftandjian, H. Follet, 2016. *Pore Network Microarchitecture Influences Human Cortical Bone Elasticity During Growth and Aging*. Journal of the Mechanical Behavior of Biomedical Materials 63, 164-173.
10. K. Metwally, E. Lefevre, C. Baron, R. Zheng, M. Pithioux, P. Lasaygues, 2016. *Measuring mass density and ultrasonic wave velocity : A wavelet-based method applied in ultrasonic reflection mode*. Ultrasonics 65, 10-17.
11. J-Ph. Berteau, E. Gineyts, M. Pithioux, C. Baron, G. Boivin, P. Lasaygues, P. Chabrand, H. Follet, 2016. *Ratio between mature and immature enzymatic cross-links impacts post-yield cortical bone behavior : an insight into greenstick fractures of the child fibula*. Bone, 79, 190-195.
12. E. Lefèvre, P. Lasaygues, C. Baron, C. Payan, F. Launay, H. Follet, M. Pithioux, 2016. *Analyzing the anisotropic Hooke's law for children's cortical bone*. Journal of the Mechanical Behavior of Biomedical Materials, 49, 370-377.
13. J-Ph. Berteau, C. Baron, M. Pithioux, F. Launay, P. Chabrand and P. Lasaygues, 2014. *In vitro ultrasonic and mechanic characterization of the modulus of elasticity of children cortical bone*. Ultrasonics 54, 1270-1276.

14. C. Baron, 2012. *Using the gradient of human cortical bone properties to determine age-related bone changes via ultrasonic guided waves*. Ultrasound in Medicine and Biology 38, 972-981.
15. C. Baron, 2011. *Propagation of elastic waves in an anisotropic functionally graded hollow cylinder in vacuum*. Ultrasonics 51, 123-130.
16. C. Baron, S. Naili, 2010. *Propagation of elastic waves in a fluid-loaded anisotropic functionally graded waveguide : Application to ultrasound characterization*. Journal of Acoustical Society of America 127, 1307-1317.
17. C. Baron, J.-F. Aubry, M. Tanter, S. Meairs, M. Fink, 2009. *Simulation of intracranial acoustic fields in clinical trials of Sonothrombolysis*. Ultrasound in Medicine & Biology 35, 1148-1158.
18. C. Baron, S. Naili, 2008, *Propagation d'ondes élastiques au sein d'un guide d'ondes élastiques anisotrope à gradient unidirectionnel sous chargement fluid.*, Comptes Rendus de Mécanique 336, 722-730.
19. C. Baron, M. Talmant, P. Laugier, 2007. *Effect of porosity on effective diagonal stiffness coefficients (c_{ii}) and elastic anisotropy of cortical bone at 1 MHz : a finite-difference time domain study*. Journal of Acoustical Society of America 122(3), 1810-1817.
20. C. Baron, A.L. Shuvalov, O. Poncelet, M. Deschamps, 2007. *Impact of localized inhomogeneity on the surface-wave velocity and bulk-wave reflection in solids*. Ultrasonics 46, 1-12.
21. A.L. Shuvalov, O. Poncelet, M. Deschamps, C. Baron, 2005. *Long-wavelength dispersion of acoustic waves in transversely inhomogeneous anisotropic plates*. Wave Motion, 42(4), 367-382.

Actes de Congrès

1. C. Guivier-Curien, V-H. Nguyen, S. Naili, C. Baron, 2019. *Ultrasonic mechanotransduction in bone repair using a computational model*. 25th Congress of the ESB 2019.
2. C. Baron, C. Guivier-Curien, V-H. Nguyen, S. Naili, 2018. *A numerical model to investigate action of LIPUS in bone healing*. 8th World Congress of Biomechanics, 2018.
3. C. Baron, C. Guivier-Curien, V-H. Nguyen, S. Naili, 2017. *Bone repair and ultrasound stimulation : an insight into the interaction of LIPUS with the bone callus through a multiscale computational study*. 174th Meeting of the Acoustical Society of America 2017.
4. M. Semaan, P. Mora, F. Launay, C. Baron, J. Vicente, M. Pithioux, 2017, *Cortical bone porosity enhancement by multiscale vessel filtering* in Proceedings of the 23rd Congress of the ESB 2017.
5. M. Semaan, P. Mora, P. Lasaygues, C. Payan, F. Launay, C. Baron, M. Pithioux, 2017, *Characterising small bone samples using RUS : Validation on adult bone towards children bone characterisation* in Proceedings of the 23rd Congress of the ESB 2017.
6. C. Baron, C. Guivier-Curien, V-H. Nguyen, S. Naili, 2016, *How to understand the effects of LIPUS on bone healing ? A multiscale computational investigation*. in Proceedings of the 22nd Congress of the ESB 2016, [hal-01345763 - version 1] .
7. Y. Bala, E. Lefèvre, J.-P. Roux, C. Baron, P. Lasaygues, M. Pithioux, V. Kaftandjian, H. Follet, 2016. *Pore Network architecture determines cortical bone elasticity during growth and aging*. ESB 2016, Osteoporosis International 27, S170.
8. E. Lefèvre, P. Lasaygues, C. Baron, C. Payan, H. Follet, M. Pithioux, 2015. *Ultrasonic assessment of diagonal stiffness coefficients in children cortical bone*. 40th Congress of the Société de Biomécanique Computer methods in biomechanics and biomedical engineering 18 (Suppl 1), 1978-1979.
9. E. Lefevre, C. Baron, M. Pithioux, 2014. *Structural and Behavioral Analysis of the Children Cortical Bone*. 39th Congress of the Societe de Biomecanique, Computer methods in biomechanics and biomedical engineering 17 (Suppl 1), 60-61.
10. S. Le Cann, T. Cachon, E. Viguier, C. Baron, L. Miladi, T. Odent, J.M. Rossi, P. Chabrand, 2014. *The influence of age and localization on pedicle fixation in immature porcine spines*. 39th Congress of the Societe de Biomecanique, Computer methods in biomechanics and biomedical engineering 17 (Suppl 1), 66-67.

11. E. Lefevre, F. Duboeuf, C. Baron, M. Pithioux, H. Follet, 2014. *Mineral Density and Microhardness of Children Cortical Bone*. in Proceedings of the 7th World Congress of Biomechanics.
12. R. Zheng, E. Lefevre, C. Baron, Ph. Lasaygues, 2013. *Thin bone sample assessment using ultrasonic transmitted signals based on wavelet processing method*. in Proceedings of the International Congress on Ultrasonics, 576-580.
13. E. Lefevre, C. Baron, M. Pithioux, 2013. *Evaluation of the elastic modulus of cortical bone : adaptation of experimental protocols to small samples*. 38th Congress of the Societe de Biomecanique, Computer methods in biomechanics and biomedical engineering 16 (Suppl 1), 328-329.
14. J.-Ph. Berteau, M. Pithioux, C. Baron, E. Gineyts, H. Follet, Ph. Lasaygues, P. Chabrand, 2012. *Characterisation of the difference in fracture mechanics between children and adult cortical bone*. 37th Congress of the Societe de Biomecanique, Computer methods in biomechanics and biomedical engineering 15 (Suppl 1), 281-282.
15. J.-Ph. Berteau, C. Baron, M. Pithioux, P. Chabrand, Ph. Lasaygues, 2012. *Children cortical bone characterisation : the ultrasonic issue*. Acoustics 2012, France [hal-00810619 - version 1].
16. C. Baron, 2012. *Ultrasonic guided waves in cortical bone modeled as a functionally graded anisotropic tube*. Acoustics 2012, France [hal-00810617 - version 1].
17. C. Baron, M. Talmant, P. Laugier, 2006. *Impact of Microstructure on Elastic Behavior of Cortical Bone*. in IEEE Ultrasonics Symposium, 2116-2119.
18. C. Baron, O. Poncelet, A. Shuvalov, M. Deschamps, 2003. *Calculation of the velocity spectrum of the vertically inhomogeneous plates by using series expansion of the matricant*. in Proceedings of the World Congress on Ultrasonics, 605-608.

Ouvrages et Chapitres d'ouvrage

— Recherche

- C. Baron, H. Follet, M. Pithioux, C. Payan, P. Lasaygues, 2022. Chapter 14 : Assessing the Elasticity of Child Cortical Bone, in Bone Quantitative Ultrasound : new horizons, Springer Editor.
- C. Baron, O. Poncelet, A.L. Shuvalov, M. Deschamps, 2013. Part I, Chapter 4 : Propagation in Continuously Stratified Media, in Materials and Acoustics Handbook, Wiley Editor.
- C. Baron, O. Poncelet, A.L. Shuvalov, M. Deschamps, 2006. Chapitre 4 : Propagation en milieux à stratification continue, in Matériaux et Acoustique, Hermes, Editor.

— Enseignement

- Y. Berthaud, C. Baron, J.L. Le Carrou, E. Sultan, S. Haliyo, S. Le Moyne 2022 Introduction à la mécanique des solides (Ed. Dunod).
- Y. Berthaud, C. Baron, F. Bouchelaghem, J-L. Le Carrou, B. Daunay, E. Sultan 2014 Mini manuel de Mécanique des solides - Cours et exercices corrigés (2^{ème} édition Ed. Dunod).
- Y. Berthaud, C. Baron, F. Bouchelaghem, J-L. Le Carrou, B. Daunay, E. Sultan 2009 Mini manuel de Mécanique des solides - Cours et exercices corrigés (Ed. Dunod).