



Chady Ghnatios, Ph.D.

Associate Professor

O: E20.06

T: 09.218950, Ext. 2015

E: cghnatios@ndu.edu.lb

Biography

Chady Ghnatios is currently an assistant professor in the mechanical engineering department at Notre Dame University (NDU) after a master in mechanical engineering and a PhD in mechanical engineering at Ecole Centrale Nantes. He is developing advanced model order reduction techniques to simulate innovative composite forming processes. Moreover, his research interests cover the use of model order reduction techniques for structural analysis as well as biomechanics and biphasic materials.

Peer-reviewed Journals

International

- C. Ghnatios, F. Chinesta, E. Cueto, A. Leygue, P. Breitkopf, P. Villon. "Methodological approach to efficient modeling and optimization of thermal processes taking place in a die: Application to pultrusion" *Composites Part A*, 42 (2011), 1169-1178.
- B. Bognet, C. Ghnatios, F. Barasinski, F. Masson, F. Chinesta, A. Poitou, A. Leygue. "Composites Manufacturing Processes: Towards an Advanced Simulation" *Revue de Composites et Matériaux Avancés*, 8 (2011), 1-15.
- C. Ghnatios, F. Masson, A. Huerta, A. Leygue, A. Cueto, F. Chinesta. "Proper Generalized Decomposition Based Dynamic Data-Driven Control of Thermal Processes" *Computer Methods in Applied Mechanics and Engineering*, 213-216 (2012), 29-41.
- C. Ghnatios, F. Chinesta, E. Cueto, A. Leygue, A. Poitou. "Optimizing Composites Forming Processes by Applying the Proper Generalized Decomposition" *American Institute of Physics proceedings*, 1315 (2010), 197-202.
- C. Ghnatios, F. Masson, A. Leygue, E. Cueto, F. Chinesta. "Proper Generalized Decomposition Based Dynamic Data-Driven Control of Material Forming Processes" *American Institute of Physics proceedings*, 1353 (2010), 1163-1168.
- F. Chinesta, A. Leygue, B. Bognet, C. Ghnatios, F. Poulahon, F. Bordeu, A. Barasinski, A. Poitou, S. Chatel, S. Maison-Le-Poec. "First Steps Towards an Advanced Simulation of Composites Manufacturing by Automated Tape Placement" *International Journal of Material Forming*, vol 7-1, first online september 2012, pages 81-92.
- C. Ghnatios, A. Ammar, A. Cimetiere, A. Hamdouni, A. Leygue, F. Chinesta. "First Steps in the Space Separated Representation of Models Defined in Complex Domains" *ASME proceedings* 44847, vol 1 (2012), 37-42. DOI : 10.1115/ESDA2012-82489.
- F. Poulahon, C. Ghnatios, B. Bognet, A. Barasinski, A. Leygue, F. Chinesta. "A Numerical Approach for the Evaluation of Residual Stresses in the Automated Tape Placement Process" *ASME proceedings* 44861, vol 3 (2012), 41-49. DOI : 10.1115/ESDA2012-82544.
- F. Masson, F. Chinesta, C. Ghnatios, E. Cueto, L. Dala, C. Law. "Numerical Tools for the Control of the Unsteady Heating of an Airfoil" *Journal of Mechanics Engineering and Automation*, 3 (2013), 339-351.

- C. Ghnatios, F. Chinesta, C. Binetruy. "3D Modeling of Squeeze Flows Occurring in Composites Laminates". International journal of material forming, published online October 2013, DOI 10.1007/s12289-013-1149-4.
- B. Bognet, C. Ghnatios, R. Lurot, A. Barasinski, A. Leygue, C. Binetruy, F. Chinesta. "Models defined in stratified-plate domains, a review on efficient 3D PGD-Based solution procedures". Revue des composites et matériaux avancées, 24 (2014), pages 97-109.
- D. Canales, C. Ghnatios, A. Leygue, F. Chinesta, I. Alfaro, E. Cueto, E. Feulvarch, J.M. Bergheau. "Numerical Simulation of Friction Stir Welding by an Efficient 3D Updated Lagrangian Model". ASME proceedings, doi:10.1115/ESDA2014-20285.
- E. Cueto, C. Ghnatios, F. Chinesta, N. Montes, F. Sanchez, A. Falco. "Improving computational efficiency in LCM by using computational geometry and model reduction techniques". Key Engineering Materials, vol 611-612, (2014), pages 339-343.
- J. Justo, F. Chinesta, E. Graciani, C. Ghnatios, F. Paris. "Study of the ultrasonic compaction process of composite laminates - Part II: Advanced numerical simulation". International Journal of Material Forming, September 2015, vol 8-4 (2015), pages 625-637.
- F. Bordeu, C. Ghnatios, D. Blouze, B. Carles, D. Sireude, A. Leygue, F. Chinesta. "Parametric 3D elastic solutions of beams involved in frame structures". Advances in Aircraft and Spacecraft Science, vol. 2-3, (2015), pages 233-248.
- N. Bur, P. Joyot, C. Ghnatios, P. Villon, E. Cueto, F. Chinesta. "On the use of model order reduction for simulating automated fibre placement processes". Advanced Modeling and Simulation in Engineering Sciences, vol. 3-4 (March 2016), pages 1-18.
- C. Ghnatios, G. Xu, M. Visonneau, A. Leygue, F. Chinesta, A. Cimetiere. "On the space separated representation when addressing the solution of PDE in complex domains". Discrete and Continuous Dynamical Systems - Series S, vol. 9 number 2, (2016), pages 475-500.
- C. Ghnatios, E. Abisset-Chavane, C. Binetruy, F. Chinesta, S. Advani. "3D Modeling of Squeeze Flow of Multiaxial Laminates". Journal of Non-Newtonian Fluid Mechanics, vol 234 (August 2016), pages 188-200.
- C. Ghnatios, E. Abisset-Chavane, F. Chinesta, R. Keunings. "3D modelling of squeeze flow of unidirectional and fabric composite inserts". American Institute of Physics extended proceedings, 1769, (2016), pages 1 - 10.
- J.-V. Aguado, D. Borzacchiello, C. Ghnatios, F. Lebel, R. Upadhyay, C. Binetruy, F. Chinesta. "A Simulation App based on reduced order modeling for manufacturing optimization of composite outlet guide vanes". Advanced Modeling and Simulation in Engineering Sciences, vol.4-1, 2017, pages 1-26.
- C. Ghnatios, C. Mathis, R. Simik, N.D. Spencer, F. Chinesta. "Modeling soft, permeable matter with the Proper Generalized Decomposition (PGD) approach, and verification by means of nanoindentation". Soft Matter, 13, (2017), pages 4482-4493. DOI: 10.1039/c7sm00246g.
- H. Tertrais, R. Ibanez, A. Barasinski, C. Ghnatios, F. Chinesta. "On the Proper Generalized Decomposition applied to microwave processes involving multilayered components". Mathematics and Computers in Simulation, vol 165, 2019, pages 347-363.
- C. Ghnatios, E. Hachem. "A stabilized mixed formulation using the proper generalized decomposition for fluid problems". Computer Methods in Applied Mechanics and engineering, 346, 2019, pages 769-787.
- M. Perez, A. Barasinski, B. Courtemanche, C. Ghnatios, F. Chinesta. "Sensitivity thermal analysis in the laser-assisted tape placement process". AIMS Materials Science, vol 5(6), 2018, pages 1053-1072.
- C. Ghnatios, G. Asmar, E. Chakar, C. Bou Mosleh. "A reduced order model based manifold technique for automated defect judging with analytical validation". Comptes rendus de l'academie des sciences mecanique, 347, 2019, pages 101-113.
- C. Ghnatios, P. Simacek, F. Chinesta, S. Advani. "A non-local void dynamics modeling and simulation through the use of the Proper Generalized Decomposition". International journal of material forming, 2019, 1-14, doi: <https://doi.org/10.1007/s12289-019-01490-7>.
- C. Ghnatios, E. Abisset-Chavanne, A. Ammar, E. Cueto, J.-L. Duval, F. Chinesta. "Advanced separated spatial representations for hardly separable domains". Computer Methods in applied mechanics and engineering, 354, 2019, pages 802-819.
- R.-M. Hage, I. Hage, C. Ghnatios, I.-S. Jawahir, R. Hamade. "Optimized tabu search estimation of wear characteristics and cutting forces in compact core drilling of basalt rock using PCD tool inserts". computers and Industrial Engineering, 136, 2019, pages 477-493.
- M. Perez, D. Prono, C. Ghnatios, E. Abisset, J.L. Duval, F. Chinesta. "Advanced modeling and simulation of SMC processes". International journal of material forming, doi: 10.1007/s12289-019-01506-2.
- C. Ghnatios, R. Hage, I. Hage. "An efficient Tabu-search optimized regression for data-driven modeling". Comptes Rendus - Mécanique, 347(11), November 2019, pages 806-816.
- A. Reille, N. Hascoet, C. Ghnatios, A. Ammar, E. Cueto, J.-L. Duval, F. Chinesta, R. Keunings. "Incremental Dynamic Mode Decomposition: A reduced-model learner operating at the low-data limit". Comptes Rendus - Mécanique, 347(11), November 2019, pages 780-792.

- C. Ghnatios, I. Alfaro, D. González, F. Chinesta, E. Cueto. "Data-Driven GENERIC Modeling of Poroviscoelastic Materials." *Entropy*, 21(12), November 2019, 1165.
- G.-P. Zehil, C. Ghnatios, R. Himo. "Soft computing approaches to homogenized properties of inclusion-modified concrete mixtures: application to XLPE-modified concrete." *Journal of Building Engineering*, 29, May 2020, 101161.
- C. Ghnatios, E. Cueto, A. Falco, J.-L. Duval, F. Chinesta. "Spurious-free interpolations for nonintrusive PGD-based parametric solutions: Application to composites forming processes." *International journal of material forming*, 2020, doi: 10.1007/s12289-020-01561-0.
- A. Barasinski, C. Ghnatios, E. Abenius, S. Bechtel, F. Chinesta. "Electromagnetic field propagation in a composite laminate and induced thermal field, application to microwave composites processing." *International journal of material forming*, 2020, doi: 10.1007/s12289-020-01562-z.
- A. Ammar, C. Ghnatios, F. Delplace, A. Barasinski, J.-L. Duval, E. Cueto, F. Chinesta. "On the effective conductivity and the apparent viscosity of a thin rough polymer interface using PGD-based separated representations." *International Journal for Numerical Methods in Engineering*, June 2020, doi: 10.1002/nme.6448.
- R. Ibanez, F. Casteran, C. Argerich, C. Ghnatios, N. Hascoet, A. Ammar, P. Cassagnau, F. Chinesta. "Data-Driven Modeling of Reactive Extrusion," *MDPI Fluids*, 2020, 5(2), 94.
- C. Ghnatios, K El Rai, N. Hascoet, P-A. Pires, J.-L. Duval, J. Lombardi, J.-Y. Hascoet, F. Chinesta. "Reduced Order Modeling of Additive Manufacturing: From Calibration to Parametric Part Distortion," *International journal of material forming*, accepted.

Peer-reviewed Conference Proceedings

Regional

- C. Ghnatios, F. Chinesta, A. Poitou, A. Ammar, A. Leygue. "Modélisation Avancée de la Mise en Forme de Composites." *Matériaux 2010*, Nantes (2010).
- B. Bognet, C. Ghnatios, F. Chinesta. "Modélisation Thermique Avancée dans des Structures Composites" *Matériaux 2010*, Nantes (2010).
- C. Ghnatios, F. Chinesta, A. Leygue, P. Villon, P. Breitkopf, A. Poitou. "Stratégies avancées d'optimisation et analyse inverse basées sur l'utilisation de la PGD." *10ème Colloque National en Calcul des Structures*, Giens (2011). Published online.
- B. Bognet, C. Ghnatios, F. Chinesta, A. Leygue, A. Poitou. "Modélisation Avancée des Procédés de Fabrication des Structures Composites." *Journées Nationales sur les Composites, JNC2011*, Poitiers (2011). Published online.
- C. Ghnatios, F. Chinesta, A. Barasinski, A. Leygue, A. Poitou. "Modélisation et simulation 3D paramétrique des champs de température dans des plaques composites." *MECAMAT Aussois* (2011).
- C. Ghnatios, A. Leygue, F. Chinesta. "Calcul inverse "on-line" basé sur des solutions "off-line" PGD paramétriques." *Journée thématique AFM Problèmes Inverses*, Lyon (2011).
- C. Ghnatios, A. Barasinski, B. Bognet, A. Leygue, F. Chinesta. "Utilisation de la PGD dans l'optimisation et le contrôle de procédés industriels." *Groupeement de Recherche GdR: Mise en oeuvre des composites et propriétés induites*, Nantes (2011).
- C. Ghnatios, A. Leygue, F. Chinesta. "Sur l'utilisation de la PGD dans simulation de la mise en forme des matériaux composites." *Journée envol recherche fondation EADS*, Paris (2012).
- F. Chinesta, C. Ghnatios, B. Bognet, F. Poulahon, A. Barasinski. "Acquis, défis et verrous de la réduction de modèles dans la simulation des procédés de fabrication des structures composites." *Groupeement de Recherche GdR : Mise en oeuvre des composites et propriétés induites*, Lyon (2012).
- C. Ghnatios, C. Binetruy, F. Chinesta. "Simulation avancée du "Squeeze Flow" dans les matériaux composites thermoplastiques." *Groupeement de Recherche GdR composites: Mise en oeuvre des composites et propriétés induites*, Toulouse (2013).
- C. Ghnatios, A. Leygue, F. Chinesta, A. Cimetiere, A. Hamdouni, P. Villon. "Stratégies avancées d'optimisation et analyse inverse basées sur l'utilisation de la PGD." *Congrès français de la mécanique CFM Besancon* (2011).
- C. Ghnatios, S. Chatel, A. Barasinski, F. Chinesta. "Modélisation avancée de la consolidation des matériaux composites à matrice thermoplastique." *Journées Nationales sur les Composites, JNC 2013*, Nantes (2013).
- J. Justo, E. Graciani, F. Paris, C. Ghnatios, F. Chinesta. "PGD analysis of the heating of a composite laminate during ultrasonic compaction." *X Congreso Nacional de Materiales Compuestos*, Algeciras, Spain, (2013).

International

- C. Ghnatios, F. Chinesta, E. Cueto, A. Leygue, A. Poitou. "Optimizing Composites Forming Processes by Applying the Proper Generalized Decomposition". AMPT (Advances in Material Processing Technologies) 2010, Paris (France), 2010.
- C. Ghnatios, F. Masson, A. Leygue, E. Cueto, F. Chinesta. "Proper Generalized Decomposition Based Dynamic Data-Driven Control of Material Forming Processes". 14th ESAFORM International Conference on Material Forming. Belfast (United Kingdom), 2010.
- C. Ghnatios, F. Masson, E. Cueto, A. Leygue, F. Chinesta. "On the Dynamic Data-Driven Simulation of Coupled Models". Coupled 2011 - Computational Methods for Coupled Problems in Science and Engineering, Kos (Greece), 2011.
- C. Ghnatios, B. Bognet, A. Leygue, F. Chinesta, A. Poitou. "Parametric modeling of composite laminates". ICCM, International Conference on Composite Materials 2011, Jeju Island (South Korea), 2011. Published online.
- C. Ghnatios, A. Ammar, A. Cimetiere, A. Hamdouni, A. Leygue, F. Chinesta. "First Steps in the Space Separated Representation of Models Defined in Complex Domains". Biennial Conference on Engineering Systems Design and Analysis, Nantes (France), 2012.
- F. Poulahon, C. Ghnatios, B. Bognet, A. Barasinski, A. Leygue, F. Chinesta. "A Numerical Approach for the Evaluation of Residual Stresses in the Automated Tape Placement Process". Biennial Conference on Engineering Systems Design and Analysis, Nantes (France), 2012.
- C. Ghnatios, J.V. Aguado, A. Leygue, F. Chinesta. "Off-line solutions of non-linear models in the context of on-line controllers". ECCOMAS 2012, Vienna (Austria), 2012.
- C. Ghnatios, F. Chinesta. "Advanced modelling of the Out-Of-Autoclave Thermoplastics Prepreg Consolidation". Complas 2013, Barcelona (Spain), 2013.
- J. Justo, C. Ghnatios, E. Garciani, F. Paris, F. Chinesta. "PGD Analysis of the Heating of a Composite Laminate During Ultrasonic Compaction". METACOMP 2013, Valencia (Spain), 2013. 10. C. Ghnatios, F. Chinesta, C. Binetruy. "Efficient 3D based simulation procedures for models defined in plate-like stratified domains". Reduced Basis, POD, PGD 2013, Blois (France), 2013.
- E. Lopez, E. Abisset-Chavanne, C. Ghnatios, Ch. Binetruy, F. Chinesta, S. Comas-Cardona. "Towards image-based homogenization by combining scanning techniques and reduced order modeling". European Congress on Composite Materials ECCM 2014, Sevilla (Spain), 2014.
- J. Justo, F. Chinesta, E. Garcia, C. Ghnatios, F. Paris. "Modeling the heat distribution of a composite laminate during ultrasonic compaction with the PGD". European Congress on Composite Materials ECCM 2014, Sevilla (Spain), 2014.
- E. Cueto, C. Ghnatios, F. Chinesta, N. Montes, F. Sanchez, A. Falco. "Improving computational efficiency in LCM by using computational geometry and model reduction techniques". ESAFORM 2014, Otaniemi (Finland), 2014.
- D. Canales, C. Ghnatios, A. Leygue, F. Chinesta, I. Alfaro, E. Cueto, E. Feulvarch, J.M. Bergheau. "Numerical Simulation of Friction Stir Welding by an Efficient 3D Updated Lagrangian Model". ESDA 2014, Copenhagen (Denemark), 2014.
- C. Ghnatios, E. Cueto, F. Chinesta. "Advanced computational strategies for fast and reliable simulation of LCM processes". FPCM 12, Twente (Holland), 2014.
- E. Lopez, E. Abisset-Chavanne, C. Ghnatios, Ch. Binetruy, F. Chinesta. "Towards real time thermal conductivity homogenization of heterogeneous microstructures". Thermacomp 2014, Lake Bled (Slovenia), 2014.
- C. Ghnatios, A. Leygue, M. Beringhier, J.J. Rodenas, J. Fuenmayor, F. Chinesta. "A simple adaptive procedure for separated representations in engineering applications". 11th World Congress on Computational Mechanics WCCM 2014, Barcelona (Spain), 2014.
- C. Ghnatios, D. Blouze, B. Carles, D. Sireude, F. Bordeu, A. Leygue, F. Chinesta. "Structure optimization using PGD based computational vamedecum". 11th World Congress on Computational Mechanics WCCM 2014, Barcelona (Spain), 2014.
- H. Tertrais, A. Barasinski, C. Ghnatios, F. Chinesta. "Microwave heating of a thin laminate composite part". 16th International Conference on Heating by Electromagnetic Sources, Padova (Italy), 2016.
- C. Ghnatios, E. Abisset-Chavanne, C. Binetruy, F. Chinesta, S. Advani. "3D Modeling of Squeeze Flow of Unidirectionally Thermoplastic Composite Inserts". 19th ESAFORM Conference, Nantes (France), 2016.
- C. Ghnatios, F. Chinesta, A. Barasinski. "Electrical Fields Simulation in Heterogenous Domains Using the Proper Generalized Decomposition". ECCOMAS congress 2016, Crete island, (Greece), 2016.
- F. Chinesta, J.V. Aguado, D. Borzacchiello, C. Ghnatios, E. Cueto, D. Gonzalez. "Computational vamedecums for large industrial applications". ECCOMAS congress 2016, Crete island, (Greece), 2016.
- C. Ghnatios, E. Abisset-Chavanne, C. Binetruy, F. Chinesta, S. Advani. "3D simulation of composite strands compression molding by using the proper generalized decomposition". European Congress on Composite Materials ECCM 2016, Munich, (Germany), 2016.

- F. Chinesta, E. Abisset-Chavanne, J.V. Aguado, A. Barasinski, D. Borzacchiello, C. Ghnatios. "Advanced modeling and real time simulation of composites manufacturing processes: realizing technological dreams". European Congress on Composite Materials ECCM 2016, Munich, (Germany), 2016.
- A. Barasinski, H. Tertrais, C. Ghnatios, F. Chinesta. "Microwave heating of composite parts". European Congress on Composite Materials ECCM 2016, Munich, (Germany), 2016.
- A. Barasinski, E. Abisset-Chavanne, C. Ghnatios, J.V. Aguado, D. Borzacchiello, F. Chinesta. "Advanced model order reduction for simulating composites forming processes". European Congress on Composite Materials ECCM 2016, Munich, (Germany), 2016.
- C. Ghnatios. "Optimization of composite forming processes using nonlinear thermal models and the proper generalized decomposition". The third international conference on Advances in Computational Tools for Engineering Application ACTEA 2016, an IEEE conference, Beirut, (Lebanon), 2016.
- C. Ghnatios, C. Mathis, F. Chinesta. "Poroelastic properties identification through micro indentation modeled by using the Proper Generalized Decomposition". The third international conference on Advances in Computational Tools for Engineering Application ACTEA 2016, an IEEE conference, Beirut, (Lebanon), 2016.
- H. Tertrais, C. Ghnatios, A. Barasinski, F. Chinesta, "Proper generalized decomposition simulation of composite materials heating by using microwaves and electromagnetic fields". 17th Biennial Conference on Electromagnetic Field Computation (CEFC 2016), Miami (USA), 2016.
- H. Tertrais, R. Ibanez, A. Barasinski, C. Ghnatios, F. Chinesta, "Simulation of Microwave Heating of a Composite Part in an Oven Cavity". 20th international Esaform Conference on Material Forming (ESAFORM 2017), Dublin, (Ireland), 2017.
- C. Ghnatios, A. Barasinski, I. Fernandez Villegas, G. Palardy and F. Chinesta, "Computational vademecum of the coupled mechanical/thermal behavior of composite materials during ultrasound curing", 7th international conference on Coupled problems (Coupled 2017), Rhodes (Greece), June 2017.
- M. Perez, A. Barasinski, B. Courtemanche, C. Ghnatios, E. Abisset-Chavanne, F. Chinesta. "Thermal simulation of the laser-assisted tape placement process". Journées Nationales sur les Composites, JNC 2017, Paris (France), June 2017.
- C. Ghnatios and G.-P. Zehil, "3D modeling of the vane test in a power-law cement paste by means of the proper generalized decomposition", 14th international conference on computational plasticity (Complas 2017), Barcelona (Spain), September 2017.
- C. Ghnatios, A. Rustom, G. Asmar, E. Chakar. "A reduced order model based manifold technique for automated defect judging, application to structural holes", 29th IEEE international conference on microelectronics (ICM2017), Beirut (Lebanon), December 2017.
- C. Ghnatios, R. Himo, E. Hachem, "A stabilized PGD mixed formulation of the Navier-Stokes equation, Application to a lid-driven cavity", 7th European Conference on Computational Fluid Dynamics (ECFD 7), Glasgow (United Kingdom), June 2018.
- C. Ghnatios, P. Simacek, F. Chinesta, S. Advani. "Modeling Consolidation and Void Dynamics During Automated Tape Placement Process", The 14th international conference on flow processing in composite materials (FPCM14), Lulea (Sweden), June 2018.
- C. Ghnatios, I. Hage, N. Metni, "Modeling the human knee joint using the proper generalized decomposition", The 5th international francophone congress on advanced mechanics (CIFMA 2018), Beirut (Lebanon), September 2018.
- R. Hage, I. Hage, C. Ghnatios, R. Hamade, "Statistically Validated and Optimized Tabu Search Estimation of Cutting Tool Life in Turning", Proceedings of the ASME 2018 International Mechanical Engineering Congress and Exposition (IMECE 2018), Pittsburgh (USA), November 2018.
- N. Montes, C. Ghnatios, H. Tertrais, J.L. Duval, E. Abisset-Chavanne, A. Falco and F. Chinesta, "Towards a manifold learning in parametric RTM processes. A geometric approach", 22th international Esaform Conference on Material Forming (ESAFORM 2019), Vitoria-Gasteiz, (Spain), April 2019.
- B. Sassiya, A. Kassem, P. Chaaya, C. Ghnatios. "Asthma Device Calibrator (ADC)", 41th Engineering in Medicine and Biology conference (41th EMB), Berlin (Germany), June 2019.
- C. Ghnatios, Jean-Louis Duval, Elias Cueto, Francisco Chinesta. "A parametric transfer function for real-time simulation of coupled complex systems", 8th international conference on Coupled problems (Coupled 2019), Barcelona (Spain), June 2019.
- R. Himo, G.P. Zehil, C. Ghnatios. "Modeling of the thermal conductivity of XLPE concrete", 27th congrès français de thermique (CFT 2019), Nantes (France), June 2019.
- H. Boustani, C. Ghnatios. "Modeling Elastic Shock In Isotropic Solids". The 4th international conference on Advances in Computational Tools for Engineering Application ACTEA 2019, an IEEE conference, Beirut, (Lebanon), July 2019.

- C. Ghnatios, G.P. Zehil. "Estimation of Power-law rheological parameters for non-Newtonian fluids using the vane test". The 4th international conference on Advances in Computational Tools for Engineering Application ACTEA 2019, an IEEE conference, Beirut, (Lebanon), July 2019.
- P. Chaaya, B. Sassiya, C. Ghnatios, A. Kassem. "Automated Calibration Machine for Spirometers". The 4th international conference on Advances in Computational Tools for Engineering Application ACTEA 2019, an IEEE conference, Beirut, (Lebanon), July 2019.
- K. El Rai, C. Ghnatios, F. Chinesta. "Stress-based non intrusive shape optimization for additive manufacturing parts", 2nd international conference on simulation for additive manufacturing (SIMAM 2019), Pavia (Italy), September 2019.
- C. Abou Khalil, C. Arida, C. Ghnatios, S. Ghanimeh. "Low-Tech Anaerobic Digestion with Innovative Mixing Scheme", 16th ISWA World Conference on Anaerobic Digestion, Bilbao (Spain), October 2019.
- K. El Rai, C. Ghnatios, F. Chinesta. "Real-time simulation of the distortion of additively manufactured metal parts", 14th World congress of computational mechanics 2020 (WCCM 2020), Paris (France), July 2020. (accepted)
- C. Ghnatios, I. Hage, R. Hage, F. Chinesta. "A local optimized regression for data analysis", 14th World congress of computational mechanics 2020 (WCCM 2020), Paris (France), July 2020. (accepted)
- A. Barasinski, C. Ghnatios, F. Chinesta. "Microwave heating of thermoplastic laminates: Thermal sensibilities and processing possibilities", 14th World congress of computational mechanics 2020 (WCCM 2020), Paris (France), July 2020. (accepted)
- C. Ghnatios, F. Chinesta, A. Huerta, A. Leygue. "Resolution and Post Treatment of Multidimensional Problems Using the Proper Generalized Decomposition". Reduced Basis, POD and PGD Model Reduction Techniques, Paris (France), 2011.
- C. Ghnatios, A. Ammar, A. Leygue, F. Chinesta, A. Cimetiere, A. Hamdouni. "Shape Optimization of Complex Domains Using the Proper Generalized Decomposition". World Congress on Computational Mechanics, Sao Paulo (Brazil), 2012.
- E. Giner, C. Ghnatios, B. Bogner, A. Leygue, F. Chinesta. "Application of the Proper Generalized Decomposition (PGD) to 3D Cracked plates and estimation of the discretization error". SIAM Conference on Applied Linear Algebra, Valencia (Spain), 2012.
- C. Ghnatios, F. Chinesta. "3D transient parametric simulation of the tape placement process using the Proper Generalized Decomposition". ASME - McMat 2015, Seattle (USA), 2015.
- F. Chinesta, J.V. Aguado, D. Borzacchiello, C. Ghnatios, E. Cueto, D. Gonzalez. "Computational vamedecums for large industrial applications". ECCOMAS congress 2016, Crete island, (Greece), 2016.
- J.V. Aguado, D. Borzacchiello, C. Ghnatios, F. Lebel, R. Upadhyay, C. Binetruy and F. Chinesta, "A simulation App based on reduced order modeling for manufacturing optimization of composite outlet guide vanes", 7th international conference on Coupled problems (Coupled 2017), Rhodes (Greece), June 2017.
- H. Tertrais, C. Ghnatios, A. Barasinski and F. Chinesta, "Microwaves heating in composites laminates processing: advanced simulation based on the PGD in-plane-out-of-plane-decomposition", 7th international conference on Coupled problems (Coupled 2017), Rhodes (Greece), June 2017.
- C. Ghnatios, H. Tertrais, A. Barasinski and F. Chinesta, "Electrical fields simulation in heterogeneous domains", 4th international workshop on Reduced Basis, POD and PGD model reduction techniques (MORTech 2017), Sevilla (Spain), November 2017.
- C. Ghnatios, H. Tertrais and F. Chinesta. "PGD-Based parametric solutions involving flow fronts: Application to RTM", The 22th international conference ESI conference, Tokyo (Japan), November 2018.
- R. Hage, I. Hage, C. Ghnatios, R. Hamade, "Advanced tool-life estimation using Tabu search", The second international workshop on databased engineering, science and technology, DATA-BEST 2019, Paris (France), March 2019.
- M. Perez, C. Ghnatios, E. Abisset-Chavanne, D. Prono, J.-L. Duval, F. Chinesta, "Advanced modeling and simulation of SMC processes", The 5th Composite convention 2019: Future factory for composites, June 2019.
- C. Ghnatios, E. Cueto, F. Chinesta. "Data-driven modeling and simulation of biphasic soft material's indentation", 15th international conference on computational plasticity (Complas 2019), Barcelona (Spain), September 2019.
- G. Quaranta, K. El Rai, C. Ghnatios, A. Chambard, J.-L. Duval, F. Chinesta. "Additive Manufacturing Hybrid Twin", 2nd international conference on simulation for additive manufacturing (SIM-AM 2019), Pavia (Italy), September 2019.
- C. Ghnatios, E. Cueto, J.-L. Duval, F. Chinesta, "Non-intrusive model order reduction technique for real time simulation of industrial applications", The 5th international workshop on reduced basis, POD and PGD model reduction techniques, MORTech 2019, Paris (France), November 2019.

- K. El Rai, G. Quaranta, C. Ghnatios, F. Chinesta, "Distortion of a part during Selective Laser Melting using the Proper Generalized Decomposition", The 5th international workshop on reduced basis, POD and PGD model reduction techniques, MORTech 2019, Paris (France), November 2019.

Chapters in Books

International

- F. Chinesta, A. Leygue, E. Cueto, A. Ammar, C. Ghnatios, B. Bognet, "PGD Based Advanced Numerical Modeling of Materials and Processes", Centrale Nantes edition, 2012.
- F. Chinesta, E. Abisset-Chavanne, J.-V. Aguado, D. Borzacchiello, E. Lopez, A. Barasinski, D. Gonzalez, E. Cueto, C. Ghnatios, J.-L. Duval. (2017) "Big-data, machine learning, data-based models and data-driven simulations, avatars and internet of things, boarding the fourth industrial revolution". In "From data to models, from models to data", pp. 45-59, Paris (France), Academy of technology.
- C. Ghnatios, B. Bognet, A. Barasinski and F. Chinesta, "Proper Generalized Decomposition Applied to Problems Defined in Degenerated Domains", in book: "ASME ACIER", submitted.

Books

- F. Chinesta, N. Hascoet, A. Ammar, E. Cueto, A. Falco, C. Ghnatios, J.-L. Duval, A. Chambard, "Methodologies on Data reduction, Data-driven modeling, Model Order Reduction & Twining for engineers in small bytes", ESI Group, San Jose (USA), 2020.

Exhibitions, Competitions and Creative Work

Local

LIRA 2016, award for best project in agro-food category and most distinguished supervisor in the same category

International

ASME IDSC worldwide top 12 finalists.

Esteemed indicators

- Technical program committee member in the CIFMA18 international conference
- Technical program committee member in the IMCET18 international conference

CV

<https://www.dropbox.com/s/s6pnb3h47vtheht/res9.pdf?dl=0>