DEPARTAMENTO DE MECANICA DE MEDIOS CONTINUOS Y TEORIA DE ESTRUCTURAS

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Actividades de investigación

Tesis Doctorales

- Análisis y modelización del golpe hidrodinamico en tanques integrados de combustible realizados en material compuesto
  Autores: ARTERO, J.A.
  Director/Codirectores: LÓPEZ-PUENTE, J. ; VARAS, D.
  Año: 2014

- Ecuaciones constitutivas de materiales termoviscoplásticos. Aplicación a un polímero de uso estructural
  Autores: GONZALEZ-LOPEZ, S.
  Director/Codirectores: LOYA, J.A.
  Centro donde se presentó: CAMPUS DE LEGANES
  Año: 2014

Publicaciones y actividades de difusión de resultados

Publicaciones en revistas científicas internacionales

- ARTERO, J.A.; PERNAS, J.; LÓPEZ-PUENTE, J. ; VARAS, D.
  On the influence of filling level in CFRP aircraft fuel tank subjected to high velocity impacts, *Composite Structures*, Vol. 107, 2014, pp. 570-577, HOLANDA - PAISES BAJOS.

- BRAUN, M.N.; FERNANDEZ-SAEZ, J.
  A new 2D discrete model applied to dynamic crack propagation in brittle materials, *International Journal of Solids and Structures*, Vol. 51, Núm. 21-22, 2014, pp. 3787-3797, ESTADOS UNIDOS DE AMERICA.

- DIAZ, J.; OLMEDO, A.; SANTIUSTE, C.; MIGUELEZ, M.H.
  Theoretical estimation of thermal effects in drilling of woven carbon fiber composite, *Materials*, Vol. 7, Núm. 6, 2014, pp. 4442-4454, SUIZA.

- FEITO, N.; LÓPEZ-PUENTE, J. ; SANTIUSTE, C.; MIGUELEZ, M.H.
  Numerical prediction of delamination in CFRP drilling, *Composite Structures*, Vol. 108, 2014, pp. 677-683, HOLANDA - PAISES BAJOS.

- GARCIA-CASTILLO, S. K.; NAVARRO, C. ; BARBERO, E.
  Damage in preloaded glass/vinylester composite panels subjected to high-velocity impacts, *Mechanics research communications*, Vol. 55, 2014, pp. 66-71, ESTADOS UNIDOS DE AMERICA.

- IVAÑEZ, I.; BARBERO, E. ; SÁNCHEZ-SÁEZ, S.
  Analytical study of the low-velocity impact response of composite sandwich beams, *Composite Structures*, Vol. 111, 2014, pp. 459-467, HOLANDA - PAISES BAJOS.

- LOYA, J.A.; ARANDA, J.; FERNANDEZ-SAEZ, J.
  Torsion of cracked nanorods using a nonlocal elasticity model, *Journal of physics. D, Applied physics*, Vol. 47, Núm. 11(115304), 2014, REINO UNIDO.

- LOYA, J.A.; MOURE, F.; MORENO, C.E.; RODRIGUEZ-MILLAN, M.; MORAL, A.D.; VERON, E.J.; MIGUELEZ, M.H.
  Engineering Graduate Studies for Public Security Professionals: the Bachelor Thesis at the End of the Studies, *Logistics and Transport*, Vol. 24, Núm. 4, 2014, pp. 49-52.

- MOURE, M.M.; SÁNCHEZ-SÁEZ, S. ; BARBERO, E. ; BARBERO, E.J.
  Analysis of damage localization in composite laminates using a discrete damage model, *Composites. Part B, Engineering*, Vol. 66, 2014, pp. 224-232, REINO UNIDO.

- OLMEDO, A.; SANTIUSTE, C.; BARBERO, E.
  An analytical model for predicting the stiffness and strength of pinned-joints composite laminates, *Composites science and technology*, Vol. 90, 2014, pp. 67-73, REINO UNIDO.

- OLMEDO, A.; SANTIUSTE, C.; BARBERO, E.
  An analytical model for the secondary bending prediction in single-lap composite bolted-joints, *Composite Structures*, Vol. 111, 2014, pp. 354-361, HOLANDA - PAISES BAJOS.

- PERNAS, J.; ARTERO, J.A.; VARAS, D. ; LÓPEZ-PUENTE, J.
  Experimental analysis of normal and oblique high velocity impacts on carbon/epoxy tape laminates, *Composites. Part A, Applied science and manufacturing*, Vol. 60, 2014, pp. 24-31, REINO UNIDO.

- PERNAS, J.; ARTERO, J.A.; ZAHR, J.A.; VARAS, D. ; LÓPEZ-PUENTE, J.
  Numerical analysis of high velocity impacts on unidirectional laminates, *Composite Structures*, Vol. 107, 2014, pp. 629-634, HOLANDA - PAISES BAJOS.

- RODRIGUEZ, J.A.; COHEN, T.; ZAERA, R.
  Approaching steady cavitation: The time scale in hypervelocity cavity expansion in work hardening and transformation hardening solids, *International journal of impact engineering*, Vol. 73, 2014, pp. 43-55, REINO UNIDO.

- RODRIGUEZ-MILLAN, M.; VAZ-ROMERO, A.; RUSINEK, A.; RODRIGUEZ, J.A.; ARIAS, A.
  Experimental Study on the Perforation Process of 5754-H111 and 6082-T6 Aluminium Plates Subjected to Normal Impact by Conical, Hemispherical and Blunt Projectiles, *Experimental mechanics*, Vol. 54, Núm. 5, 2014, pp. 729-742, ESTADOS UNIDOS DE AMERICA.

- RUBIN, M.B.; RODRIGUEZ, J.A.
  The effect of radial inertia on flow localization in ductile rods subjected to dynamic extension, *International journal of impact engineering*, Vol. 69, 2014, pp. 157-164, REINO UNIDO.

- RUBIO, L. ; FERNANDEZ-SAEZ, J. ; MORASSI, A.
  The full nonlinear crack detection problem in uniform vibrating rods, *Journal of Sound and Vibration*, Vol. 339, 2014, pp. 99-111, REINO UNIDO.

- SANTIUSTE, C.; DIAZ, J.; SOLDANI, X.; MIGUELEZ, M.H.
  Modelling thermal effects in machining of carbon fiber reinforced polymer composites, *Journal of reinforced plastics and composites*, Vol. 33, Núm. 8, 2014, pp. 758-766, REINO UNIDO.

- SANTIUSTE, C.; RODRIGUEZ-MILLAN, M.; GINER, E.; MIGUELEZ, M.H.
  The influence of anisotropy in numerical modeling of orthogonal cutting of cortical bone, *Composite Structures*, Vol. 116, 2014, pp. 423-431, HOLANDA - PAISES BAJOS.

- ZAERA, R.; RODRIGUEZ, J.A.; VADILLO, G. ; FERNANDEZ-SAEZ, J.
  Dynamic necking in materials with strain induced martensitic transformation, *Journal of the Mechanics and Physics of Solids*, Vol. 64, 2014, pp. 316-337, REINO UNIDO.

- ZAERA, R.; SOLER, A.M.; TEUS, J.
  Uncovering changes in spider orb-web topology owing to aerodynamic effects, *Journal of the Royal Society interface*, Vol. 11, Núm. 98, 2014, pp. 1-10, REINO UNIDO.

- ZAHR, J.A.; PEREZ-CASTELLANOS, J. L.
  A particular implementation of the modified secant homogenization method for particle reinforced metal matrix composites, *Composite Structures*, Vol. 109, Núm. March, 2014, pp. 260-267, HOLANDA - PAISES BAJOS.

Colaboraciones en obras colectivas

- ARIAS, A. ; LÓPEZ-PUENTE, J. ; LOYA, J.A.; VARAS, D. ; ZAERA, R.
  Analysis of high-speed impact problems in the aircraft industry, en: Constitutive Relations under Impact Loadings: Experiments, Theoretical and Numerical Aspects, SPRINGER, AUSTRIA, pp. 137-207, 2014.

Ponencias y Comunicaciones a congresos

- AYNAT, A.; GARCIA, D.; VAZ-ROMERO, A.; RODRIGUEZ, M.; ARIAS, A.
  Numerical modeling of dynamic punch of hybrid metal composite for prosthetic intervertebral discs (IVD), ECCM16: 16th European Conference on Composite Materials, *SEVILLA*, ESPAÑA, 2014.

- BRAUN, M.N.; FERNANDEZ-SAEZ, J.
  Desarrollo de un nuevo modelo discreto aplicado a problemas de propagación dinámica de fisuras; en: Anales de Mecánica de la Fractura, S.E.I.E. GRUPO ESPAÑOL DE FRACTURA , , 2014.

- GINER, E.; SANCHO, J.; MUÑIZ, M.; FERNANDEZ-SAEZ, J. ; FERNANDEZ, A.
  Estudio mediante elementos finitos de los campos elásticos en el entorno de la singularidad de esquina; en: Anales de Mecánica de la Fractura, S.E.I.E. GRUPO ESPAÑOL DE FRACTURA , , 2014.

- IVAÑEZ, I.; BARBERO, E. ; SÁNCHEZ-SÁEZ, S.
  Analysis of the dynamic flexural behaviour of sandwich beams, ECCM16: 16th European Conference on Composite Materials, *SEVILLA*, ESPAÑA, 2014.

- MONTERO, D.S.; TORRES, J. C. ; ZAHR, J.A.; PEREZ-CASTELLANOS, J. L. ; VAZQUEZ, M.C.
  Effects of elongation on polymer optical fiber power losses for sensing purposes, 23rd International Conference on Optical Fiber Sensors (OFS23), *SANTANDER*, ESPAÑA, 2014.

- MOURE, F.; MORENO, C.E.; RODRIGUEZ-MILLAN, M.; LOYA, J.A.; DEL MORAL, A.; VERON, E.J.; MIGUELEZ, M.H.
  Engineering graduate studies for public security professionals: the Bachelor Thesis at the end of the studies, The 6th Congress of the Cartagena Network of Engineering CNE-RCI, *WROCLAW*, POLONIA, 2014.

- MOURE, M.M.; GARCIA-CASTILLO, S. K.; SÁNCHEZ-SÁEZ, S. ; BARBERO, E. ; BARBERO, E.J.
  Size effect on damage evolution in open-hole composite laminates, ECCM16: 16th European Conference on Composite Materials, *SEVILLA*, ESPAÑA, 2014.

- OLMEDO, A.; SANTIUSTE, C.; BARBERO, E.
On the prediction of bolted composite joints: analytical and numerical models, MECHCOMP2014: 1st International Conference on Mechanics of Composites, *LONG ISLAND (NEW YORK)*, ESTADOS UNIDOS DE AMERICA, 2014.

- PERNAS, J.; ARTERO, J.A.; VARAS, D. ; LÓPEZ-PUENTE, J.
Simulations of High Velocity Impacts of Ice on Carbon/epoxy Composite Laminates; en: Applied Mechanics and Materials : Proceedings of the 8th International Symposium on Impact Engineering, 2014.

- PERNAS, J.; ARTERO, J.A.; VARAS, D. ; LOYA, J.A.; LÓPEZ-PUENTE, J.
Effects of impactor mass in carbon/epoxy woven laminates under low-velocity loading, ECCM16: 16th European Conference on Composite Materials, *SEVILLA*, ESPAÑA, 2014.

- PERNAS, J.; LÓPEZ-PUENTE, J.
Failure envelope for ice based on Burzynski criteria, The 8th Workshop on Dynamic Behaviour of Materials and its Applications in Industrial Processes, *VARSOVIA*, POLONIA, 2014.

- RITTEL, D.; ROTBAUMB, Y.; RODRIGUEZ, J.A.; SORY, D.; ZAERA, R.
Dynamic necking of notched tensile bars: an experimental study; en: Experimental Mechanics : [7th International Worshop on Dynamic Behaviour of Materials and Its Applications in Industrial Processes], SPRINGER CUSTOMER SERVICE CENTER GMBH, , 2014.

- RODRIGUEZ, J.A.; COHEN, T.; ZAERA, R.
Dynamic spherical cavity expansion in transformation hardening elastoplasic solids: theoretical and finite element analysis, SMDS 2014 (IUTAM Symposium on Micromechanics of Defects in Solids), *SEVILLA*, ESPAÑA, 2014.

- RODRIGUEZ, J.A.; FERNANDEZ-SAEZ, J. ; ZAERA, R.
Dynamic inflation of hyperelastic spherical membranes: remarks on the role of constitutive relation, IUTAM Symposium on Mechanics of Soft Active Materials, *HAIFA*, ISRAEL, 2014.

- RODRIGUEZ, J.A.; VADILLO, G. ; ZAERA, R.; FERNANDEZ-SAEZ, J. ; RITTEL, D.
Competition between dynamic recrystallization and thermal softening effects in dynamic necking, ICEM 16 (16th International Conference on Experimental Mechanics), *CAMBRIDGE*, REINO UNIDO, 2014.

- RODRIGUEZ, M.; GARCIA, D.; AYNAT, A.; VAZ-ROMERO, A.; ARIAS, A.
Thermomechanical behaviour of composite sandwich panels of polymer/metal under low-velocity impact, ECCM16: 16th European Conference on Composite Materials, *SEVILLA*, ESPAÑA, 2014.

- SUMELKA, W.; FERNANDEZ-SAEZ, J. ; ZAERA, R.
Small-scale effect in the framework of fractional and Eringen non-local models, SOLMECH 2014 (39th Solid Mechanics Conference), *ZAKOPANE*, POLONIA, 2014.

- VARAS, D. ; LÓPEZ-PUENTE, J. ; ZAERA, R.
Numerical study of the effects of metallic plates in the attenuation of the HRAM phenomenon; en: Applied Mechanics and Materials : Proceedings of the 8th International Symposium on Impact Engineering, 2014.

- VAZ-ROMERO, A.; GARCIA, D.; AYNAT, A.; RODRIGUEZ, M.; ARIAS, A.
High impact velocity on multi-layered composite of polyether ether ketone and aluminium, ECCM16: 16th European Conference on Composite Materials, *SEVILLA*, ESPAÑA, 2014.

- VAZ-ROMERO, A.; RODRIGUEZ, J.A.; ARIAS, A.
  Interplay between stress waves propagation and flow localization in the dynamic tensile test: application to steel sheets, SOLMECH 2014 (39th Solid Mechanics Conference), *ZAKOPANE*, POLONIA, 2014.

- ZAERA, R.; SOLER, A.M.
  Aerodynamic effects in spider orb-web design, The 8th Workshop on Dynamic Behaviour of Materials and its Applications in Industrial Processes, *VARSOVIA*, POLONIA, 2014.

- ZAHR, J.A.; PEREZ-CASTELLANOS, J. L.
  Behavior of cohesive crack model in loading-unloading processes, CIFIE2010, *Oporto*, PORTUGAL, 2010.

Actividades de formación y movilidad de personal investigador

Estancias en otros centros

- JESUS PERNAS SANCHEZ
  Título: Estancia post-doctoral en la Universidad de Edimburgo. Estudio en regimen dinámico (blast) de estructuras
  Centro Externo: University of Edinburgh
  País: REINO UNIDO
  Duración: 12/09/2014 a 21/12/2014.

- JOSE ALFONSO ARTERO GUERRERO
  Título: Estancia Posdoctoral Universidad De Edimburgo. Estudio Dinámico De Estructuras
  Centro Externo: University of Edinburgh
  País: REINO UNIDO
  Duración: 12/09/2014 a 21/12/2014.

- JOSE ANTONIO RODRIGUEZ MARTINEZ
  Título: Desarrollo de modelos de celda para analizar el comportamiento mecánico de estructuras laminares metálicas
  Centro Externo: Universidad de la Lorena
  País: FRANCIA
  Duración: 01/03/2014 a 31/03/2014.

- JOSE ANTONIO RODRIGUEZ MARTINEZ
  Título: Estudio de la localización del flujo plástico en aleaciones de titanio sometidas a cortadura dinámica
  Centro Externo: TECHNION
  País: ISRAEL
  Duración: 01/05/2014 a 31/05/2014.

- JOSUE ARANDA RUIZ
  Título: Efectos tridimensionales en la propagación de fisuras, bajo la tutela del profesor Dr. J.F. Molinari
  Centro Externo: École Polytechnique Fédérale de Lausanne
  País: SUIZA
  Duración: 01/12/2013 a 31/03/2014.

- RAMON EULALIO ZAERA POLO
  Título: Bridging the gap between mesoscale and continuum model of Dyneema composite under impact
  Centro Externo: Engineering Dynamics Department, Soutwest Research Institute
  País: ESTADOS UNIDOS DE AMERICA
  Duración: 25/08/2014 a 12/12/2014.