

DEPARTAMENTO DE
MECANICA DE MEDIOS
CONT.Y T. ESTRUCTURAS

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T. ESTRUCTURAS

Áreas de conocimiento:

- MECANICA MEDIOS CONTINUOS Y TEORIA ESTRUCTURAS

ÁREA DE CONOCIMIENTO: MECÁNICA MEDIOS CONTINUOS Y TEORÍA ESTRUCTURAS

Actividades de investigación

Tesis Doctorales

- Advanced constitutive relations for modeling thermo-viscoplastic behavior of metallic alloys subjected to impact loading
Autores: RODRÍGUEZ-MARTÍNEZ, J.A.
Director: ARIAS, A. ; RUSINEK, A.
Año: 2010
- Comportamiento mecánico de materiales compuestos de matriz metálica y refuerzo de partículas. Un enfoque basado en celdas multipartícula
Autores: ZAHR, J.A.
Director: PEREZ-CASTELLANOS, J. L.
Año: 2010

Publicaciones y actividades de difusión de resultados

Publicaciones en revistas científicas internacionales

- BUITRAGO, B.; GARCIA-CASTILLO, S.K.; BARBERO, E.
Experimental analysis of perforation of glass/polyester structures subjected to high-velocity impact, *Materials letters (General ed.)*, Vol. 64, Núm. 9, 2010, pp. 1052-1054, HOLANDA.
- BUITRAGO, B.; SANTIUSTE, C. ; SÁNCHEZ-SÁEZ, S. ; BARBERO, E. ; NAVARRO, C.
Modelling of composite sandwich structures with honeycomb core subjected to high velocity impact, *Composite Structures*, Vol. 92, 2010, pp. 2090-2096, HOLANDA.
- FERNANDEZ-CANTELI, A.; GINER, E.; FERNANDEZ-ZUÑIGA, D.; FERNANDEZ-SAEZ, J.
On the path and area Jx1-integral components and their relationship to the out-of-plane constraint in elastic cracked plates, *Key engineering materials*, Vol. 417-418, 2010, pp. 421-424, SUIZA.
- GINER, E.; FERNANDEZ-ZUÑIGA, D.; FERNANDEZ-SAEZ, J. ; FERNANDEZ-CANTELI, A.
On the Jx1-integral and the out-of-plane constraint in a 3D elastic cracked plate loaded in tension, *International Journal of Solids and Structures*, Vol. 47, 2010, pp. 934-946, ESTADOS UNIDOS DE AMERICA.
- GUZMÁN-LÓPEZ, R; ZAHR, J.A.; PEREZ-CASTELLANOS, J. L. ; MELENDEZ, J.
Determination of the Constitutive Relation Parameters of a Metallic Material by Measurement of Temperature Increment in Compressive Dynamic Tests, *Experimental mechanics*, Vol. 50, Núm. 3, 2010, pp. 389-397, ESTADOS UNIDOS DE AMERICA.

- IVAÑEZ, I.; SANTIUSTE, C. ; SÁNCHEZ-SÁEZ, S.
FEM analysis of dynamic flexural behaviour of composite sandwich beams with foam core , *Composite Structures*, Vol. 92, 2010, pp. 2285-2291, HOLANDA.
- LOYA, J. A. ; VADILLO, G. ; FERNANDEZ-SAEZ, J.
First-Order Solutions for the Buckling Loads of Euler-Bernoulli Weakened Columns, *JOURNAL OF ENGINEERING MECHANICS-ASCE*, Vol. 136, Núm. 5, 2010, pp. 674-679, ESTADOS UNIDOS DE AMERICA.
- LOYA, J. A. ; VILLA, E.I.; FERNANDEZ-SAEZ, J.
Crack-front propagation during three-point-bending tests of polymethyl-methacrylate beams, *Polymer Testing*, Vol. 29, Núm. 1, 2010, pp. 113-118, HOLANDA.
- MIGUELEZ, M. H. ; RUBIO, L. ; LOYA, J. A. ; FERNANDEZ-SAEZ, J.
Improvement of chatter stability in boring operations with passive vibration absorbers , *International journal of mechanical sciences*, Vol. 52, Núm. 10, 2010, pp. 1376-1384, HOLANDA.
- PEREZ-CASTELLANOS, J. L. ; GUZMÁN-LÓPEZ, R; RUSINEK, A.; MELENDEZ, J.
Temperature increment during quasi-static compression tests using Mg metallic alloys, *Materials & design*, Vol. 31, Núm. 7, 2010, pp. 3259-3269, REINO UNIDO.
- RODRÍGUEZ-MARTÍNEZ, J.A.; PESCI, R.; RUSINEK, A.; ARIAS, A. ; ZAERA, R.; ARIAS, D.
Thermo-mechanical behaviour of TRIP 1000 steel sheets subjected to low velocity perforation by conical projectiles at different temperatures, *International Journal of Solids and Structures*, Vol. 47, Núm. 9, 2010, pp. 1268-1284, ESTADOS UNIDOS DE AMERICA.
- RODRÍGUEZ-MARTÍNEZ, J.A.; RUSINEK, A.; CHEVRIER, P.; BERNIER, R.; ARIAS, A.
Temperature measurements on ES steel sheets subjected to perforation by hemispherical projectiles, *International journal of impact engineering*, Vol. 37, Núm. 7, 2010, pp. 828-841, REINO UNIDO.
- RODRÍGUEZ-MARTÍNEZ, J.A.; RUSINEK, A.; PESCI, R.
Experimental survey on the behaviour of AISI 304 steel sheets subjected to perforation, *Thin-walled structures*, Vol. 48, Núm. 12, 2010, pp. 966-978, REINO UNIDO.
- RUBIO, L.; FERNANDEZ-SAEZ, J.
A Note on the Use of Approximate Solutions for the Bending Vibrations of Simply Supported Cracked Beams, *JOURNAL OF VIBRATION AND ACOUSTICS*, Vol. 132, Núm. 2, 2010.
- RUSINEK, A.; RODRÍGUEZ-MARTÍNEZ, J.A.; ARIAS, A.
A thermo-viscoplastic constitutive model for FCC metals with application to OFHC copper, *International journal of mechanical sciences*, Vol. 52, Núm. 2, 2010, pp. 120-135, HOLANDA.
- RUSINEK, A.; RODRÍGUEZ-MARTÍNEZ, J.A.; PESCI, R.; CAPELLE, J.
Experimental characterisation and modelling of the thermo-viscoplastic behaviour of steel aisi 304 within wide ranges of strain rate at room temperature, *JOURNAL OF THEORETICAL AND APPLIED MECHANICS*, Vol. 48, Núm. 4, 2010, pp. 1027-1042, POLONIA.
- SANTIUSTE, C. ; SÁNCHEZ-SÁEZ, S. ; BARBERO, E.
Residual flexural strength after low-velocity impact in glass/polyester composite beams, *Composite Structures*, Vol. 92, 2010, pp. 25-30, HOLANDA.
- SANTIUSTE, C. ; SÁNCHEZ-SÁEZ, S. ; BARBERO, E.
A comparison of progressive-failure criteria in the prediction of the dynamic bending failure of composite laminated beams, *Composite Structures*, Vol. 92, Núm. 10, 2010, pp. 2406-2414, HOLANDA.

- SANTIUSTE, C. ; SOLDANI, X.; MIGUELEZ, M. H.
Machining FEM model of long fiber composites for aeronautical component, *Composite Structures*, Vol. 3, Núm. 92, 2010, pp. 691-698, HOLANDA.

Ponencias y Comunicaciones a congresos

- FERNÁNDEZ, D.; ZAERA, R.
Prediction of the response of lightweight armors using multilayer perceptrons , DYMAT Light-Weight Armour for Defence \& Security Group, LWAG-2010. Failure and damage mechanisms of armour materials, *MADRID*, ESPAÑA, 2010.
- GARCIA, P.A.; VERA, M. ; ZAERA, R.
An anisotropic nonlinear FEM model of the inhomogeneous compression of PEMFC gas diffusion layers, Grove Fuel Cell Symposium. Fuel Cells Science & Technology 2010, *ZARAGOZA*, ESPAÑA, 2010.
- GARCIA, P.A.; VERA, M. ; ZAERA, R.
Simulacion numerica de los efectos de compresion no homogenea de la capa porosa en pilas de combustible PEM , IV Congreso Nacional de Pilas de Combustible(CONAPPICE), *SEVILLA*, ESPAÑA, 2010.
- GONZALEZ-LOPEZ, S.; FERNANDEZ-SAEZ, J.
Bending vibrations of Euler-Bernonilli beams treated with non-local damping patches. , The tenth international conference on computational structures technology, *VALENCIA*, ESPAÑA, 2010.
- GUZMÁN-LÓPEZ, R; PEREZ-CASTELLANOS, J. L.
Mechanical behaviour of Zn-22Al-2Cu alloy foams. *LWAG Workshop.*, *MADRID*, ESPAÑA, 2010.
- GUZMÁN-LÓPEZ, R; PEREZ-CASTELLANOS, J. L. ; RUSINEK, A.
Measurement of temperatura increase associated to plastic deformation under dynamic-compression of aluminium alloy AL 6082. *LWAG Workshop*, *MADRID*, ESPAÑA, 2010.
- IRAUSQUIN, I.A.; PEREZ-CASTELLANOS, J. L.
Finite element model for the analysis of a close-cell metal foam under compression., *EUROFOAM2010, Borovets*, BULGARIA, 2010.
- IRAUSQUIN, I.A.; PEREZ-CASTELLANOS, J. L. ; TEIXEIRA, F.; MIRANDA, V.
Numerical of low velocity impact on aluminium sandwich plates with aluminium core. *LWAG Workshop.*, *MADRID*, ESPAÑA, 2010.
- IRAUSQUIN, I.A.; PEREZ-CASTELLANOS, J. L. ; TEIXEIRA, F.; MIRANDA, V.
Numerical modelling of the SHPB test of an aluminum foam. *LWAG Workshop*, *MADRID*, ESPAÑA, 2010.
- IRAUSQUIN, I.A.; TEIXEIRA, F.; MIRANDA, V.; PEREZ-CASTELLANOS, J. L.
Modelling of sandwich plates with aluminium foam core subjected to drop-weight impact., *EUROFOAM2010, Borovets*, BULGARIA, 2010.
- IRAUSQUIN, I.A.; TEIXEIRA, F.; MIRANDA, V.; PEREZ-CASTELLANOS, J. L.
Numerical modelling of the dynamic compression of a closed-dell aluminium foam., *CIFIE2010, Oporto*, PORTUGAL, 2010.

- IVIÑEZ, I.; SANTIUSTE, C. ; BUITRAGO, B.; GARCIA-CASTILLO, S.K.; BARBERO, E. ; SÁNCHEZ-SÁEZ, S.
Behaviour of sandwich structures with foam core subjected to high-velocity impact , 9th International Conference on Sandwich Structures (ICSS-9), PASADENA, ESTADOS UNIDOS DE AMERICA, 2010.
- IVIÑEZ, I.; SANTIUSTE, C. ; SÁNCHEZ-SÁEZ, S. ; BUITRAGO, B.; GARCIA-CASTILLO, S.K.; BARBERO, E.
Behaviour of Foam Cored Sandwich Plates under High-Velocity Impact, Madrid Workshop: Failure and Damage Mechanisms of Armour Materials (LWAG 2010), LEGANES, ESPAÑA, 2010.
- LÓPEZ-PUENTE, J. ; VARAS, D. ; LOYA, J. A. ; NAVARRO, C. ; ZAERA, R.
Modeling high-speed impact on CFRPs with an energy balance equation , 19th DYMAT Technical Meeting. Dynamic Mechanical Behaviour of Polymers and Composites, ESPAÑA, 2010.
- LÓPEZ-PUENTE, J. ; VARAS, D. ; LOYA, J. A. ; ZAERA, R.
Analytical modeling of woven CFRP laminates submitted to high impact velocity , Workshop on Constitutive Modeling in Applications for Industrial Processes, Krakow, POLONIA, 2010.
- LÓPEZ-PUENTE, J. ; VARAS, D. ; LOYA, J. A. ; ZAERA, R.; NAVARRO, C.
Modeling High-Speed Impact on CFRP's with an Energy Balance Equation, 19th DYMAT Technical Meeting: Dynamic Mechanical Behaviour of Polymers and Composites, Estrasburgo, FRANCIA, 2010.
- PALLETI, K.T.; SANTIUSTE, C. ; FROSTIG, Y.; THOMSEN, O.
Thermo-Mechanical Interaction effects in foam Cored Sandwich Panels-correlations between High-Order model and Finite Elements. Analysis results, ICSS-9., ESPAÑA, 2010.
- RODRÍGUEZ-MARTÍNEZ, J.A.; RUSINEK, A.; ARIAS, A.
A constitutive model for FCC metals with dependences on strain rate and temperatura: Applications to annealed OFHC copper , CRACOVIA, POLONIA, 2010.
- RODRÍGUEZ-MARTÍNEZ, J.A.; RUSINEK, A.; ARIAS, A.
A phenomenological physically-based constitutive model for BBC metals with application to vanadium., LWAG meeting. Actas del congreso., MADRID, ESPAÑA, 2010.
- RODRÍGUEZ-MARTÍNEZ, J.A.; RUSINEK, A.; PESCI, R.; ARIAS, A. ; CHEVRIER, P.; BERNIER, R.
Experimental study on the behaviour of AISI 304 steel sheets subjected to perforation., LWAG meeting. Actas del congreso, MADRID, ESPAÑA, 2010.
- RUSINEK, A.; KLEPACZKO, J.R.; RODRÍGUEZ-MARTÍNEZ, J.A.; ARIAS, A.
Advanced constitutive relations for steel alloys: strain hardening and phase transformation effects. Keynote Lecture, Solid Mechanics Conference. Actas del congreso., Varsovia, POLONIA, 2010.
- RUSINEK, A.; RODRÍGUEZ-MARTÍNEZ, J.A.; ARIAS, A. ; CHEVRIER, P.; BERNIER, R.
Temperature increase in ES steel sheets subjected to perforation by hemispherical projectiles , Co-autor. Cracovia Workshop. Actas del congreso. , CRACOVIA, POLONIA, 2010.
- SÁNCHEZ-SÁEZ, S. ; BARBERO, E. ; OSORIO, J.M.
Estado do comportamento balístico de estruturas contend cortica., 8th Congresso Nacional de Mecânica Experimental., Gruimaraes, PORTUGAL, 2010.
- SANTIUSTE, C. ; FROSTING, Y.; THOMSEN, O.
Thermo-Mechanical loads interactions in foam cored circular plates., ICSS-9, ESPAÑA, 2010.

- VADILLO, G. ; FERNANDEZ-SAEZ, J. ; MOLINARI, A.
Thermal effects consideration in the behaviour of porous materials in adiabatic conditions, V Workshop on constitutive modeling in applications for industrial processes, *Krakow*, POLONIA, 2010.
- VADILLO, G. ; FERNANDEZ-SAEZ, J. ; PECHERSKI, R.
Application of Burzynski Yield Condition in Metal Plasticity, 37th Solid Mechanics Conference, *Warsaw*, POLONIA, 2010.
- VADILLO, G. ; LOYA, J. A. ; FERNANDEZ-SAEZ, J.
First order solutions for the Bucking of Cracked timoshenko columns., The tenth international conference on computational Structures technology, *VALENCIA*, ESPAÑA, 2010.
- VARAS, D. ; ZAERA, R.; LÓPEZ-PUENTE, J.
Experimental study CFRP Fluid-filled tubes subjected to high-velocity impact., Composite Structures, *MADRID*, ESPAÑA, 2010.
- 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

- CARLOS SANTIUSTE ROMERO
Título: Estancia en la universidad de Aalborg (Dinamarca)
Centro Externo: Aalborg University
País: DINAMARCA
Duración: 01/08/2009 a 22/12/2010.
- JOSE ANTONIO RODRIGUEZ MARTINEZ
Título: Estancia de formación Pre-doctoral
Centro Externo: Escuela de Ingenieros de Metz
País: FRANCIA
Duración: 01/12/2010 a 31/12/2010.