

CCTAE

**Centro de Ciências e Tecnologias
Aeronáuticas e Espaciais**

(Center for Aerospace Science and Technology)

**Summary of Activities
2009**

I. Publications

Members

Researchers

- Luís Manuel Braga da Costa Campos (coordinator)
- Agostinho Rui A. da Fonseca
- André Calado Marta Marta (from 30/11/2009)
- Fernando José Parracho Lau
- Filipe Szolnoky Ramos Pinto Cunha
- João Manuel Gonçalves de Sousa Oliveira
- Joaquim Manuel Guerreiro Marques
- Pedro da Graça Tavares Álvares Serrão

Chapters of Books

Editions

- L.M.B.C. Campos, & W. Schroeder (Guest Editors), "CEAS/AIAA Combustion Noise Workshop", International Journal of Aeroacoustics, Volume 8, pages 1-176, 2008

Papers in Journals

2009

1. L. M. B. C. Campos (2009) "On an analytical model of the aerothermodynamics of fluid-structure interaction", Acta Astronautica, volume 64, pages 971-978.
2. L. M. B. C. Campos & F. J. P. Lau (2009) "On active noise reduction in a cylindrical duct with flow", International Journal of Acoustics and Vibration, volume 14, pages 150-162.
3. P. Gamboa, J. Vale, F. J. P. Lau, & A. Suleman 2009. "Optimization of a Morphing Wing Based on Coupled Aerodynamic and Structural Constraints", AIAA Journal, 47(9), 2087-2104.

Communications to International Symposia

2009

1. "Aerodynamic Analysis of Helicopter Rotors: Implementation and Validation", Luís Daniel Cruz, Filipe Szolnoky Ramos Pinto Cunha, AIAA-Pegasus Student Conference, Toulouse (France), 12-13 March, 2009.

2. A. A. Gomes, F. J. P. Lau & D. Sousa 2009, "Optimization for The Attenuation Of Flow Induced Vibration Of A Fuselage Plate", 8th World Congress on Structural and Multidisciplinary Optimization, Lisbon, Portugal, 1-5 June 2009.
3. M. Neves, F. Mendonça, F. J. P. Lau, S. Gerges & J. B. Coelho 2009, "On The Effect Of Undamped Frequency Maximization For The Turbulent Flow-Induced Vibrations Of A Viscoelastically Supported Plate", 8th World Congress on Structural and Multidisciplinary Optimization, Lisbon, Portugal, 1-5 June 2009.
4. "UCAV: A Technology Assessment Project as a Complex Problem Case Study", Manuel Jose Moreira de Freitas, Filipe Szolnoky Ramos Pinto Cunha, António Manuel Relógio Ribeiro, Jose Raul Carreira Azinheira, Rui de Carvalho, José Cabrita Freitas, Massimo Avalle, Second International Symposium on Engineering Systems MIT, Cambridge, Massachusetts, USA, June 15-17, 2009.
5. "Technology Needs for Autonomous Multi-Vehicle UCAV Missions", Massimo Avalle, Filipe Szolnoky Ramos Pinto Cunha, Jaap Doornbos, Alfonso Jimenez-Enriquez, Giorgio Leonardi, 30 June-2 July 2009, SCI-202 SYMPOSIUM ON Intelligent Uninhabited Vehicle Guidance Systems
6. L. M. B. C. Campos & P. G. T. A. Serrão "On the scattering of sound by functions of bent and twisted tubes", 16th International Congress of Sound and Vibration, 5-9 July 2009, Krakow.
7. L. M. B. C. Campos & P. G. T. A. Serrão "On the discrete and continuous Spectrum of waves in a sheared swirling inhomogeneous flow", 16th International Congress of Sound and Vibration, 5-9 July 2009, Krakow.
8. J. M. G. S. Oliveira, "Acoustics of annular ducts with impedance walls", 16th International Congress of Sound and Vibration, 5-9 July 2009, Krakow, Poland.
9. L. Vargas, D. Rodrigues, J. M. G. S. Oliveira, F. J. P. Lau, "Development of a Wind Turbine Noise prediction Model", 7th EUROMECH Solid Mechanics Conference, 7-11 September 2009, IST, Lisbon, Portugal.
10. "Structural Vibroacoustic Analysis Methodology. Wind Tunnel Case Study", Filipe Cunha, Mihail Fontul, António Ribeiro, and Alice Sousa, IRF'2009 - 3rd International Conference on Integrity, Reliability & Failure, Porto, 20-24 July 2009.
11. "A Broader View to Helicopters: An Engineering Systems Approach", Filipe Szolnoky Ramos Pinto Cunha, António Manuel Relógio Ribeiro, AHS International Specialists Meeting on Systems Engineering, October 15-16, 2009, Hartford, Connecticut, USA.

II. Research and Technology Projects

Projects as leader or partner

EU funded projects

2004-2009

- FRIENDCOPTER (Integration of Technologies in support of a passenger and environmentally friendly helicopter), funded by European Union, 6th Framework Programme, 1st call, Action Aeronautics; leader: Eurocopter; partners: see table 0; role of IST: model of helicopter noise and ground effects.

2007-2010

- X3-NOISE (Aircraft Noise Network) - Phase III, funded by the European Union, under the 6th Framework programme, 1st call, European Research Area/Aeronautics; leader-SNECMA-France; role of IST: Support task 5: Scientific exchanges.

2009-2011

- COSMA (Community Oriented Solutions to Minimize aircraft noise annoyance), funded by European Union, 7th Framework Programme, 2nd Call, Aeronautics; leader: EADS-Innovation Works; partners: see Table 0; role of IST: models of: (i) propagation in atmospheric turbulence and wind; (ii) effects of ground and obstacles on sound (iii); jet and turbine noise source components for engines.

III. Scientific Orientation

Master Thesis

Completed Master Thesis

2009

1. "Análise Estrutural à Asa da aeronave C-130H", Yoann Eras Lage (Data de Prova: 08-04-2009 15:38). Advisor: F. Cunha.
2. "Aerodynamic Analysis of Helicopter Rotors: Implementation and Validation", Luís Daniel Costa Gonçalves Silva Cruz (Data de Prova: 21-04-2009 11:57). Advisor: F. Cunha.
3. "Aerodynamics of Insect-Like MAV's: A Quasi-Steady Model for Hovering", Diogo Samora Cerqueira (Data de Prova: 13-11-2009 19:06). Advisor: J. Oliveira; Co-Advisor: F. Cunha.

4. "Regional Airline's Operational Performance Study and Appropriate Enhancement Techniques - Portugália Airlines as a case study", Pedro Miguel Faria Pereira (Data de Prova 24-11-2009 08:30) Advisor: P. Serrão.
5. "Implementação da metodologia MSG-3 na indústria aeronáutica Portuguesa: Aplicação prática na empresa OGMA - Indústria Aeronáutica de Portugal S.A.", Henrique José Palma Escórcio Almeida (Data de Prova: 14-12-2009 16:52). Advisor: F. Cunha.
6. "Princípios da Conceção e Análise Aeromecânica de um Helicóptero para Combate a Incêndios", Marta Filipa Ferreira Pessoa Rodrigues (Data de Prova: 16-12-2009 15:27). Advisor: F. Cunha.
7. "Studies on Lamb waves generation with an array of actuators", Mestrado em Engenharia Aeroespacial/ Ciências Militares em Aeronáutica, Frederico Alexandre Nunes de Cáceres Alves. Co-Advisor: Agostinho Fonseca.
8. "Perspective flight-path displays: the tunnel-in-the-sky concept", João Miguel Morais Fonseca. Advisor: Agostinho Fonseca.
9. "Sistema de controlo de missão de um UAV", Diogo Cremers Mendonça Tavares. Advisor: Agostinho Fonseca.
10. "Desenvolvimento de um sistema de emulação de ajudas à navegação", Jorge André Marques Frade. Advisor: Agostinho Fonseca.
11. "Development of procedures for operational evaluation of a GNSS-GBAS system", Marco Trevisi. Advisor: Agostinho Fonseca.