Assoc. Prof. Hab. Dr. Adinel GAVRUS – Short CV

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Global H-Index: 13
ISI WoS H-Index: 7

Born in Cisnadie (Sibiu), Romania at 3 august 1967. He obtained in July 1992 the Eng. Diploma (Diploma of Merit) from Mechanical Faculty of Galati Univ. (Romania). In 1993 he received the DEA Master Deegree (Magna Cum Laude) in the field of Special Metallurgy and Materials from Mines Paris'Tech (ENSMP – Paris) & CEMEF - Sophia–Antipolis (France). His PhD in Materials Sciences (Summa Cum Laude) has obtained at Mines Paris'Tech. – CEMEF in November 1996. The Habilitation in Mechanics of Univ. Rennes 1 (France) has obtained in March 2008.

From December 1996 until August 1997 He was Assoc. Researcher at Mines Paris'Tech (ENSMP – Paris) & Center of Materials Forming - CEMEF (Sophia Antiplois) of France and since September 1997 Assoc. Prof. at Nat. Institute of Applied Sciences of Rennes (INSA Rennes) of France – Department of Mechanical and Control Systems Eng. – Laboratory of Civil and Mech. Eng. From January 2009 he obtained the Professor Qualification from French Univ. National Council (CNU).

Specific scientific developments was dedicated to develop Numerical Finite Element House Codes (TORRAO & TRACTRAO) to identify automatically the thermo-visco-plastic behaviour using a complete FE Modelling of the Torsion or Tensile test starting form an Inverse Problem formulation and an Inverse Analysis method based on the Direct Differentiation of discretized FE equations (FORTRAN), using a specific Gauss-Newton minimization algorithm (1992-1997/CEMEF– Sophia Antipolis, Mines Paris'Tech) and to programming in FORTRAN the general OPTPAR Numerical Platform Software to solve Inverse Problems via Non-Linear Optimization & Parameter Identification Methods using Inverse Analysis and Non-Linear Regression Principles (1997-2013/INSA Rennes, France). The used Software: Forge®, Cast3M, Marc, Abaqus, Ls-Dyna.

He currents research interests concerns the Materials Mechanics, Mechanics of Continuum Media, Materials Plasticity and Large Deformations Theory, Numerical Modelling and Simulation of Material Forming Processes, Formulation and Identification of Rheological or Tribological Constitutive Models Behaviour, Inverse Analysis, Inverse Problems, Numerical Optimization Algorithms, Integrated Design/Global Optimisation Techniques, Rapid Dynamics, Impact & Severe Loadings and Applications to Industrial Metals Forming or Materials Manufacturing.

Concerning the scientific publication activity he has a Global h-Index = 13 (700 Citations), ISI WOS H-Index = 7, SCOPUS Index = 7 with 1 Book, 4 Int. Book Chap., 1 Nat. Book Chap., 45 Articles ISI Int. Sci. Journals (Peer-Review), 19 Articles BDI Nat. Sci. Journals (Peer-Review), 64 Articles ISI Int. Conf., (Peer-Review; 3 Invited Lecturer), 37 Articles Nat. Conf. (Peer-Review).

Assoc. Prof. Adinel Gavrus is current member of ESAFORM, EUROMECH, DYMAT, CFM and UASTRO international scientific associations, participates as Editorial or Scientific Committee Member for 6 Int. Journals, 25 Int. Conf., Co-Chairman & Organizing of 6 National and Int. Conf. and as a Peer-Reviewer for 90 Int. J. and Int. Conf. (ELSEVIER, SPRINGER, WILEY, MDPI, …)

He participated to the direction of 7 PhD Thesis, 35 Research Master Thesis & Graduate Res. Projects, 15 Industrial Projects and to a lot of Int. and Nat. Research Projects. He has a Team Member of European Project COST 512 "Modelling in Material Science and Processing Material" (**1995-1997**), France CEMEF/TMP (Mines Paris'Tech, Sophia Antipolis), Czech Republic (Brno Univ., Ostrava Univ.), Slovenia (Ljubliana Univ.), Swiss (Géneva); work in the tasks ***concerning Rheological Laws Formulation and Identification Using a Finite Element Inverse Analysis Based on an Analytical Gauss-Newton Algorithm and Parameter Sensitivity Computation: application to forging processes and thixotropic forming***; Team Member of French National Network OPTIMUS Project "High Speed Machining" (**2004-2008**), (INSA Rennes, ECN Nantes, UBS Lorient, Univ. Bordeaux, Univ. Lyon, CEMEF - ENSMP Sophia Antipolis, ENSAM - ARTS & METIERS Paris Tech, France); work in the field concerning ***Finite Element Simulation of High Speed Machining Using New Mesoscopic Metallic Rheological Constitutive Laws Based on Physical Mechanisms of Severe Loadings and Parameter Identification by Finite Element Inverse Analysis of Quasi-Static & Dynamic Compression Tests***. Team Member **from 2001** of Breizh Regional Res. Group BRESMAT "Materials Mechanics" (INSA Rennes, UR1 Rennes, ENS Cachan-Rennes, UBS Lorient, ENSIETA – ENSTA Brest); work in the fields ***concerning Formulation & Identification of Physically Based Mesoscopic Materials Rheological Laws for Severe Loadings, Finite Element Modelling of Rapid Compression & Tensile Tests (SHPB, Dynamic Hydraulic Press Upsetting) and Application of Inverse Analysis Principle to Solve Inverse Problems (Boundary Conditions Identification, Numerical Calibration and Two-Step Parameter Identification) using Complete and Reduced Numerical Finite Element Models***; ***Application of Inverse Analysis Principle to New Materials Forming Tribological Tests; New Trends of Experimental & Numerical Studies of Anisotropic Rheological and Tribological Behaviour***; **2018-2020** Supervisor of a Post-Doctoral Scientific Res. USIAERO (University of Brittany Loire/UBL – Breizh Region "***Multi-physics/multi-scale analysis and numerical modelling of aeronautical metal alloys machining taking into account high thermomechanical gradients via behavior-damage-microstructure coupling***" (LGCGM - Civil and Mech. Eng. Laboratory - EA 3913 of INSA Rennes, France – Industrial Department of UBL). The project focuses on the multi-physics and multi-scale modelling on machining of metallic materials. A mesoscopic constitutive material behaviour model has been developed to reproduce the sensitivity to high plastic deformation, strain rate and temperature together with local material damage estimation. Material microstructure evolution during the cutting in terms of dynamic recovery and recristalization of biphasic metals alloys generated by the local gradients of thermomechanical variables, has been take into account using a specific multi-scale modelling to describe plastic coupling of plastic deformation/microstructure evolution and plastic deformation/material damage.

His major scientific publications are: [1] A. Gavrus et al., "***The rheological parameter identification formulated as an inverse finite element problem***", Inverse Problems in Eng., vol. 7(1), pp. 1-41, 1999. [2] A. Gavrus et al., "***A study of material constitutive behaviour at elevated temperature from compressive SHPB test using an inverse analysis method***", J. Phys. IV, vol. 134, pp. 661-666, 2003. [3] S Diot, D Guines, A Gavrus, E Ragneau, "Two-step procedure for identification of metal behavior from dynamic compression tests", Int. J. of Impact Eng., vol. 34(7), pp. 1163-1184, 2007. [4] A. Gavus et al., "***An optimal forward extrusion device proposed for numerical and experimental analysis of materials tribological properties corresponding to bulk forming processes***", Trib. Int., vol. 47, pp. 105-121, 2012. [5] A. Gavrus, F. Bucur, A. Rotariu, S. Cananau – "***Mechanical Behavior Analysis of Metallic Materials using a Finite Element Modeling of the SHPB Test, a Numerical Calibration of the Bar's Elastic Strains and an Inverse Analysis Method***", Int. J. of Material Forming, vol. 8, Issue 4, pp.567 -579, 2015. [6] S. Liu, A. Kouadri-Henni, A. Gavrus – "***DP600 dual phase steel thermo-elasto-plastic constitutive model considering strain rate and temperature influence on FEM residual stress analysis of laser welding***", J. of Manuf. Processes, Vol. 35, pp. 407-419, 2018.