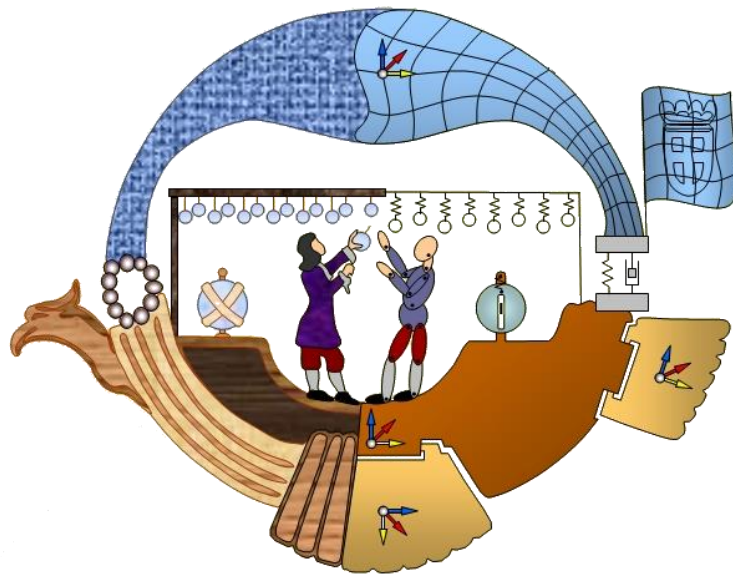


DSM2022

2nd Portuguese Conference on Multibody Systems Dynamics

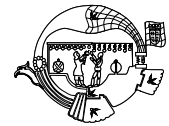
Conference Program



5th-6th December 2022

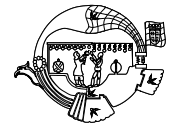
Guimarães, Portugal



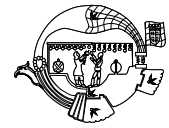


Program at a Glance

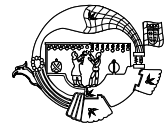
Hours	Monday, 5 th December	Tuesday, 6 th December
8h00		
8h30	REGISTRATION	REGISTRATION
9h00	OPENING CEREMONY	
9h30	SESSION 1 Control and Mechatronics	SESSION 6 Biomechanics II
10h00		
10h30	<i>Coffee-Break and Posters' Session</i>	<i>Coffee-Break and Posters' Session</i>
11h00	SESSION 2 Vehicle Dynamics	SESSION 7 Numerical Methods
11h30		
12h00	SESSION 3 Dynamics of Mechanical Systems	KEYNOTE 2 Speaker: <i>Jorge Ambrósio</i>
12h30		AWARDS AND CLOSING CEREMONY
13h00		
13h30	<i>Lunch</i>	<i>Lunch</i>
14h00		
14h30	KEYNOTE 1 Speaker: <i>João Paulo Vilas-Boas</i>	
15h00		Visit to the Historic Center
15h30	SESSION 4 Biomechanics I	
16h00		
16h30	<i>Coffee-Break and Posters' Session</i>	
17h00	SESSION 5 Education	
17h30		
18h00		
19h00		
20h00		
20h30		
21h00	Conference Dinner	
21h30		



Monday, 5 th December (Day 1)	
8h15	Registration
9h00	Opening Ceremony
9h10	Session 1 - Control and Mechatronics (Chair: Pedro Neto)
9h10	MULTIBODY MODEL OF THE COLLABORATIVE HUMAN-INSPIRED ROBOT CHARMIE <u>Fernando Gonçalves</u> , Tiago Ribeiro, A. Fernando Ribeiro, Gil Lopes, Paulo Flores
9h25	BIPEDAL RUNNING DYNAMICS PREDICT THE DESIGN OF A STATIC ANKLE CONTROLLER <u>André S. Carvalho</u> , Miguel A. Botto, Jorge Martins
9h40	REAL-TIME OPTIMIZATION OF THE LIMBS ENERGETIC COST FOR A HEXAPOD ROBOT ACCORDING TO THE TERRAIN TOPOLOGY <u>Joana Coelho</u> , Diogo Silva, Filipe Marques, Paulo Flores
9h55	A SIMPLIFIED FORCE FEEDBACK MODEL THAT PREDICTS DEADBEAT HOPPING André S. Carvalho, Miguel A. Botto, <u>Jorge Martins</u>
10h10	FES-BASED ANKLE-FOOT ORTHOSIS CONTROL STRATEGY WITH INTRA-STEP ADAPTATION <u>João Gouveia</u> , Jorge Martins
10h25	Coffee-Break and Posters' Session
10h45	Session 2 - Vehicle Dynamics (Chair: Marta Carvalho)
10h45	ON THE DESIGN OF RAILWAY TURNOUTS USING MULTIBODY SIMULATIONS <u>Hugo Magalhães</u> , Pedro Jorge, Yann Bezin
11h00	SEAT VIBRATION TRANSMISSIBILITY OF THE PORTUGUESE ALFA PENDULAR TILTING TRAIN <u>Patrícia Silva</u> , Diogo Ribeiro, Joaquim Mendes, Eurico Seabra
11h15	DYNAMIC STUDY OF RAILWAY VEHICLES CONSIDERING A VARIABLE COEFFICIENT OF FRICTION IN THE WHEEL-RAIL INTERFACE <u>José Ferreira</u> , Paulo Flores, Filipe Marques
11h30	INFLUENCE OF THE FRICTION MODELLING DECISIONS ON THE ACCEPTANCE OF THE RUNNING BEHAVIOUR OF A FRICTION-DAMPED LOCOMOTIVE <u>Pedro Millan</u> , João Pagaimo, Hugo Magalhães, Pedro Antunes, Jorge Ambrósio
11h45	Session 3 - Dynamics of Mechanical Systems (Chair: Carlos Fernandes)
11h45	INFLUENCE OF SINGLE TOOTH MESH STIFFNESS ASYMMETRY ON GEAR MESH STIFFNESS AND DYNAMIC RESPONSE <u>João D.M. Marafona</u> , Pedro M.T. Marques, Ramiro C. Martins, Jorge H.O. Seabra
12h00	FINITE ELEMENT-BASED MODELLING OF A PLANETARY GEAR TRAIN SYSTEM: STRESS ANALYSIS <u>Nuno Dourado</u> , Javier Sánchez Espiga
12h15	INVESTIGATION OF THE DAMPING RATIO IN PARTICLE IMPACT DAMPER AND TUNED MASS DAMPER FOR INTERNAL TURNING TOOLS <u>Wallyson T.A. da Silva</u> , Alves Da Silva, Sebastian Cabezas, Tamás Szabó, László Péter Kiss
12h30	DYNAMIC MODELLING OF DEEP GROOVE BALL BEARINGS BASED ON SMOOTH-CONTACT APPROACHES <u>Raúl Gismeros</u> , Filipe Marques, Eduardo Corral, Jesús Meneses, Paulo Flores, Cristina Castejón
12h45	EVALUATION OF THE ACCURACY OF THE WEBER-BANASHEK FORMULATION FOR THE CONTACT BETWEEN INTERNAL GEARS IN PLANETARY TRANSMISSIONS <u>Javier Sanchez Espiga</u> , Nuno Dourado, Alfonso Fernandez del Rincon, Filipe Marques, Fernando Viadero, Paulo Flores
13h00	Lunch



Monday, 5 th December (Day 1)	
14h30	Keynote 1 (Chair: Carlos Quental)
	SPORTS BIOMECHANICS: TECHNOLOGICAL DEVELOPMENTS AND PERSPECTIVES João Paulo Vilas-Boas
15h25	Session 4 - Biomechanics I (Chair: Javier Cuadrado)
15h25	DEVELOPMENT, CONSTRUCTION, AND PRELIMINARY APPLICATIONS OF AN ADVANCED SYSTEM FOR REHABILITATION <u>Marco Silva</u> , F. Santos, L. Roseiro, A. André, R. Durães, W. Xavier, A. Cruz, C. Malça
15h40	A NOVEL METHODOLOGY TO RESTRICT THE RANGE OF MOTION OF HUMAN ARTICULATIONS <u>Mariana Rodrigues da Silva</u> , Filipe Marques, Miguel Tavares da Silva, Paulo Flores
15h55	KINEMATICS AND DYNAMICS OF THE AUTOMATIC DEVICE FOR SKIN BIOPSY <u>Jesús Meneses</u> , Eduardo Corral, Raúl Gismeros, Cirsitina Castejón
16h10	MBS MODEL TO EVALUATE OCCUPANTS BIOMECHANICAL RESPONSE IN AIRCRAFT SEAT DYNAMIC TESTING Ana Patrícia Martins, <u>Marta Carvalho</u> , Hamid Lankarani
16h25	A INFLUÊNCIA DO TIPO DE SAPATILHA DE CORRIDA NA ACTIVIDADE MUSCULAR DOS MEMBROS INFERIORES <u>Gonçalo Marta</u> , Carlos Quental, João Folgado, Francisco Guerra Pinto
16h40	Coffee-Break and Posters' Session
17h00	Session 5 - Education (Chair: Filipe Marques)
17h00	FIRST LESSONS LEARNED FROM INCLUDING DIFFERENT PEDAGOGICAL TECHNIQUES IN MECHANICAL ENGINEERING Alberto Díez Ibarbia, Ana de Juan, Pablo Garcia Fernandez, Alfonso Fernandez del Rincon, <u>Javier Sanchez Espiga</u> , Fernando Viadero
17h15	TWENTY-FIVE YEARS OF DYNAMICS OF MECHANICAL SYSTEMS AT THE UNIVERSITY OF MINHO <u>Paulo Flores</u> , Filipe Marques
17h30	PROFESSOR PIMENTA CLARO (1957-2018): PIONEER IN DYNAMICS OF MECHANICAL SYSTEMS AT THE UNIVERSITY OF MINHO <u>Paulo Flores</u> , Luís Alves, Nuno Dourado, Filipe Marques
17h45	PROFESSOR JORGE AMBRÓSIO: A TRIBUTE AT THE UNIVERSITY OF MINHO <u>Paulo Flores</u>
20h00	Conference Dinner



Tuesday, 6 th December (Day 2)	
8h30	Registration
9h00	Session 6 - Biomechanics II (Chair: Miguel Tavares da Silva)
9h00	INFLUÊNCIA DO PADRÃO DE ROTURA DA COIFA DOS ROTADORES NA ESTABILIDADE DO OMBRO APÓS RECONSTRUÇÃO CAPSULAR SUPERIOR: ANÁLISE COMPUTACIONAL <u>Madalena Antunes</u> , Carlos Quental, João Folgado, Clara de Campos Azevedo, Ana Catarina Ângelo
9h15	EXPLORING THE LIMITATIONS OF A PROPOSED MUSCLE FATIGUE MODEL THROUGH STATIC AND DYNAMIC EXPERIMENTS Florian Michaud, Urbano Lúgrís, Laura A. Frey-Law, <u>Javier Cuadrado</u>
9h30	A FOOT-GROUND CONTACT MODEL FOR HUMAN MOTION ANALYSIS <u>Leonor Saraiva</u> , Mariana Rodrigues da Silva, Filipe Marques, Miguel Tavares da Silva, Paulo Flores
9h45	FULL-BODY OPTICAL MOTION CAPTURE WITH REAL-TIME ESTIMATION OF MUSCLE EFFORTS <u>Urbano Lúgrís</u> , Florian Michaud, Francisco Mouzo, Javier Cuadrado
10h00	MODELAÇÃO DA FASE DE RECEÇÃO NUM SALTO VERTICAL Alfredo Gomes, Maria F. Paulino, Ana M. Amaro, <u>Maria Augusta Neto</u>
10h15	LOCOMOTION RHYTHMICITY ASSESSMENT THROUGH DYNAMIC PRIMITIVES OF MOVEMENT <u>Rui Moura Coelho</u> , Jorge Martins, Hermano Igo Krebs
10h30	CALCULATION OF THE REACTION AND MUSCLE FORCES IN SQUAT AND LUNGE EXERCISES – COMPARISON BETWEEN A STATIC OPTIMIZATION TECHNIQUE AND A MUSCLE REDUCTION APPROACH <u>Ivo Roupá</u> , Rita Peneque, Sérgio Barroso Gonçalves, Miguel Tavares da Silva
10h45	Coffee-Break and Posters' Session
11h05	Session 7 - Numerical Methods (Chair: Jorge Martins)
11h05	MÉTODO DAS FORÇAS DE LIGAÇÃO NA MODELAÇÃO DE TRANSMISSÕES MECÂNICAS <u>Alberto Martinho</u>
11h20	ON THE ANALYSIS OF FULLY CARTESIAN COORDINATES WITH A GENERIC RIGID BODY - COMPARISON BETWEEN A FULL AND A REDUCED RIGID BODY DEFINITION IN SPATIAL SYSTEMS <u>Sérgio B. Gonçalves</u> , Ivo Roupá, Miguel Tavares da Silva
11h35	FLEXIBLE MULTIBODY DYNAMICS USING A PERIDYNAMICS FORMULATION <u>João Pagaimo</u> , Francisco Vieira, Jorge Ambrósio
11h50	Keynote 2 (Chair: Paulo Flores)
	AN HISTORICAL OVERVIEW OF MULTIBODY DYNAMICS: FROM THE ORIGINS TO A PERSPECTIVE FOR THE FUTURE Jorge Ambrósio
12h45	Awards and Closing Ceremony
13h00	Lunch
14h30	Visit to the Historic Center



Posters' Session (The posters' sessions will occur during the coffee-breaks.)

CURRENT EVIDENCE ON BIOMECHANICAL MODELING FOR THE ANALYSIS OF CRUTCH-ASSISTED GAIT

Mariana Rodrigues da Silva, Filipe Marques, Miguel Tavares da Silva, Paulo Flores

DEVELOPMENT OF A MULTIBODY MODEL FOR THE STUDY OF THE DYNAMICS OF THE LOCOMOTION OF A HEXAPOD ROBOT

João Canedo, Joana Coelho, Filipe Marques

MULTIBODY SIMULATIONS TO STUDY THE DYNAMICS OF ROAD VEHICLES WITH STRUCTURES MADE OF NEW MATERIALS AND JOINING TECHNOLOGIES

Pedro Millan, Lucas da Silva, Jorge Ambrósio

CURRENT PERSPECTIVES ON THE MODELING OF THE FOOT-GROUND INTERACTION FOR HUMAN MOTION ANALYSIS

Leonor Saraiva, Mariana Rodrigues da Silva, Filipe Marques, Miguel Tavares da Silva, Paulo Flores