

PROGRAM

BMD 2019 - Symposium on the Dynamics and Control of Single Track Vehicles - University of Padova

		Monday 9 September	Tuesday 10 September	Wednesday 11 September
8:00	9:00	registration opens	registration opens Chair: A. Doria	registration opens
9:00	9:20	welcome (F. Bonollo - Head of the Engineering School)	Multi-objective optimization of the stability of a bicycle (Uribe, Munoz, Doria - Universidad de los Andes, University of Padova)	Chair: S. Will
9:20	9:40	opening (M. Massaro - University of Padova) Chair: A. Schwab	A family of rear wheel steered bicycles which are self-stable (de Jong, Meijaard, Papadopoulos, Ruina, Schwab - TU Delft, Olton, Spaulding Hospital, Cornel University)	Evaluation of a Motorcycle Simulator (Westerhof, de Vries, Schwab, Happee - Dana, Cruden BV, TU Delft)
9:40	10:00	Impulsive Laboratory Tests to Predict On-Road Comfort of a Bicycle (Marconi, Polanco, Doria - University of Padova, Universidad Javeriana Bogotá)	Analysis of high speed bicycle shimmy and relevant bicycle compliance (Prevati, Magnani, Mastinu - Politecnico di Milano)	Identification of Rider-Vehicle Coupling on Motorcycles and Riding Simulators (Scherer, Pleß, Winner - TU Darmstadt)
10:00	10:20	Expanded Optimization for Discovering Optimal Lateral Handling Bicycles (Moore, Hubbard - University of California Davis)	Wobble Mode and the Conditions Necessary for Perceptible Response (Christensen, Brendelson, Taylor - Harley-Davidson Motor Co)	Design and implementation of a high-performance, nonlinear MPC-based virtual motorcycle rider (Bruschetta, Picotti, De Simoi, Chen, Beghi - University of Padova, Eindhoven University of Technology, Sinteco)
10:20	10:40	The importance of haptic feedback in the balance of a bicycle (Dialynas, Christoforidis, Happee, Schwab - TU Delft)	Gyroscopic stabilisers for autonomous motorcycles (Lot, Fleming - University of Southampton)	A narrow-track tilting tricycle with variable stability that the user can control manually (Wilson, Shortreed, Dressel - University of Wisconsin-Milwaukee)
10:40	11:10	break & poster Chair: R. Lot	break & poster Chair: J. Moore	break & poster Chair: I. Kageyama
11:10	11:30	Off-road motorcycle tyre force estimation (Vasques, Rustighi, Lot, Pegoraro - University of Southampton, WP Suspensions)	A real-time thermal model for the analysis of tire/road interaction in motorcycle applications (Farroni, Lenzo, Mancinelli, Mercantini, Sakhnevych, Timpone - Università di Naples Federico II, Sheffield Hallam University, Ducati)	A study of Personal Mobility Vehicle (PMV) with active inward tilt mechanism on obstacle avoidance (Haraguchi, Kageyama, Kaneko - Nagoya University, Nihon University, Osaka Sangyo University)
11:30	11:50	Effects of tire wear on motorcycle dynamics (Leo, Pezzola, Pagliara, Morandin - Soluzioni Ingegneria)	Riding velocity and payload conditions affecting weave modal shape: subjective assessment on riding safety (Armanini, Leo, Pezzola, Taroni, Cheli - Soluzioni Ingegneria, Politecnico di Milano)	Study on Braking Support Using Haptic Guidance for Inverted Pendulum Personal Transporter (Suzuki, Sugimachi, Sakurai, Maki - The University of Tokyo)
11:50	12:10	Motorcycle smart wheels for monitoring purposes (Gobbi, Mastinu, Comolli, Ballo, Prevati - Politecnico di Milano)	Influence of damper control on traction and wheelie of a full suspension eBike with anti-squat geometry (Klug, Moia, Schnabel - Robert Bosch)	Study on Evaluation of Personal Mobility Vehicle with Leaning Behavior using Driver Model (Matsuda, Kageyama, Kuriyagawa, Haraguchi, Kaneko, Kobayashi, Murayama - Nihon University, Nagoya University, Osaka Sangyo University, IPG Automotive)
12:10	12:30	Locking of the front wheel: a Painlevé paradox (Meijaard - Olton)	Modeling and Analysis of Bicycle Equipped with an In-Wheel Suspension (Corno, Panzani, Catenaro, Savaresi - Politecnico di Milano)	closing (A. Doria - University of Padova)
12:30	14:00	lunch & networking Chair: M. Ploechl	lunch & networking Chair: A. Dressel	lunch & networking
14:00	14:20	Study on Identification of Equivalent Torsional Rigidity for Two-wheeled Vehicle Suspension (Kageyama, Kuriyagawa, Haraguchi, Kobayashi - Nihon University, Nagoya University)	Practical Realization of a Theoretical Optimal-Handling Bicycle (Gilboa, Kubicik, Toribio, Hubbard, Moore - University of California Davis)	
14:20	14:40	Development of Techniques to Control Steering Feeling for Motorcycle (Terada, Ichikawa, Tokunaga, Hagio, Utsumi - Kawasaki Heavy Industries)	Characterization and Modelling of Various Sized Mountain Bike Tires and the Effect of Tire Tread Knobs and Inflation Pressure (Dressel, Sadauckas - University of Wisconsin-Milwaukee-Harley-Davidson Motor Co)	
14:40	15:00	Characterizing pleasurable motorcycle riding with vehicle dynamics data (Will, Metz, Hammer, Moerbe, Henzler, Harnischmacher - VIVW, Robert Bosch, KTM AG)	Bicycle tyres – rolling resistance (Mastinu, Gobbi, Matraschia - Politecnico di Milano, Pirelli)	
15:00	15:20	Data Analysis of Motard Motorcycle (Shinagawa, Nozawa, Masuda - Yamaha Motor Co, Jaws Co)	Validation of a Bicycle Dynamics Assistance System Using Hardware-in-the-Loop Simulation (Pfeiffer, Wrede, Steeb - Pforzheim University)	
15:20	15:40	poster highlights	Linear and nonlinear controllers of an autonomous bicycle have almost identical basins of attraction in a non-linear simulation (Meehan, Ruina - Cornell University)	visit to Ducati Museum
15:40	16:10	break & poster Chair: T. Haraguchi	break & poster Chair: M. Massaro	& Factory in Borgo Panigale
16:10	16:30	Detection of One-Handed Riding during Activation of Automated Braking (Wahl, Schmälzle, Klews, Henzler - Robert Bosch)	Effects of interconnected suspension systems on the dynamics of sport motorcycles (Moreno-Ramírez, Tomás-Rodríguez, Evangelou - Universidad Antonio de Nebrija Madrid, City University of London, Imperial College London)	(transfer by BMD bus)
16:30	16:50	Loss control detection for motorcycles during emergency braking manoeuvres using a supervised learning algorithm (Huertas-Leyva, Savino, Baldanzini, Pierini - University of Florence)	Detailed Energy Flow Method for Analysis of Motorcycle Straight Running Stability (Katayama, Tamoto, Yoshino, Kimura - Karume Institute of Technology, Yamaha Motor Co)	
16:50	17:10	Measures for the Evaluation of Riders' Adaption to the Changing Vehicle State during Autonomous Emergency Braking Manoeuvres on Motorcycles (Merkel, Winner - TU Darmstadt)	The effect of suspensions and racetrack three-dimensionality on the minimum lap time of motorcycles (Marconi, Massaro - University of Padova)	
17:10	17:30	Experimental Research on Motorcycle Stability and Rider Control during Cornering Braking (Mohan, Singhania, Sai Praveen - TVS Motor Co)	group photo	
17:30	19:00		transfer to restaurant in Venice by BMD bus & water taxi	
19:00	23:30		BMD dinner & return to Padova	

POSTERS

Modelling of all-wheel drive motorcycle for dynamics analysis and control (Bonci, Longhi, Lorenzoni, Scala - Università Politecnica delle Marche)	Design and Operation of an Instrumented Full-Suspension Mountain Bike (Ingenlath, Rudat, Archut, Corves - RWTH Aachen University)	Analysis of High speed instability of Weave Mode in Motorcycle by Using Energy Flow Method (Tamoto, Kimura, Miki, Katayama - Yamaha Motor Co., New Mongolian Institute of Technology)
A tool for the automatic identification of weave and wobble (Veneri, Bova, Formentini, Massaro - University of Padova, Dynamotion)	Measurement of forces and moments of bicycle tyres (Mastinu, Gobbi, Prevati, Ballo, Magnani - Politecnico di Milano)	Analysis of High Speed Wobble Mode using Energy Flow Method (Yoshino, Tamoto, Kimura, Katayama - Kurume Institute of Technology, Yamaha Motor Co., New Mongolian Institute of Technology)
Design of an electric bicycle speed controller (Metz, Moore - University of California Davis)	Optimal control of dual-steering robotic bicycle: a bicycle and a segway and everything in-between (Das, Ruina - Cornell University)	Replacement Front Suspension System For Telescopic Forks On Sports Motorcycles (Rae)
A Low-Cost Data Acquisition System for On-Road Experimental Activity (Marcon, Tomiati, Magnani - Politecnico di Milano)	High Speed Stability On Dual Sport Motorbike (Chuzel, Grange, Dejax, Precigout - Michelin)	Motorcycle Dynamics and Control of the MOTOROID That Stands Upright Even When Stopped (Tsuchiya, Tsujii - Yamaha Motor Co.)