



## 6<sup>th</sup> Workshop on Innovative Engineering for Fluid Power

Venue: ABIMAQ Headquarters, Av. Jabaquara, 2925, São Paulo, Brazil

November 22 - 23, 2022

[laship.ufsc.br/site/en/wiefp2022](http://laship.ufsc.br/site/en/wiefp2022)

Organization



Support



### PROGRAM

Tuesday, Nov 22

08:00-08:30 **Registration**

08:30-08:40	Welcome	Victor De Negri Petter Krus Luciana Pereira Alessandra Holmo Maurício Garcia	Professor Professor Professor Director President	UFSC LiU UFABC CISB CSHPA
-------------	---------	--	--	---------------------------------------

08:40-10:00 **Session 1 - New Components and Circuits - Chairperson: Samuel Kärnell**

08:40-09:10	Pneumatic Equipment with Constant Monitoring	Fábio R. Oliveira	Application Engineer	CAMOZZI	
09:10-09:30	Optimization of Pressure Relief Grooves for Multi-Quadrant Hydraulic Machines in Different System Architectures	Thomas Heeger	Researcher	Linköping University	
09:30-10:00	Improving Your System Design with Pressure Intensifier	Ricardo Araujo	Comercial Director	Bahri	

10:00-10:20 **Coffee Break**

10:20-12:30 **Session 2 - Electrification and Digital Transformation - Chairperson: Peter Krus**

10:20-10:50	The Digitization of Pneumatic Automation and Its Impacts on Energy Efficiency (In Portuguese)	Paulo Roberto Santos	Innovation Director	Zorfatec	
10:50-11:10	A Novel Multi-Pump System for Hydraulic Actuation in Electric Mobile Machinery	Artur T. C. Gama	Researcher	Linköping University	
11:10-11:40	Extend the Life Of Your Hydraulic System With HYDAC' s Smart Fluid Connection Software	Marcel Magre	Service Automation Manager	HYDAC	
		Diogo Vinícius João	Researcher	CERTI	
11:40-12:30	Discussion Panel: Electrification and Digital Transformation	Katharina Schmitz	Professor	Aachen University	
		Emilia Villani	Professor	ITA	

12:30-13:45 **Lunch Interval**

13:45-16:00 **Session 3 - Innovation and Management - Chairperson: Luciana Pereira**

13:45-14:05	The History and Future of Fluid Power Pumps and Motors	Samuel Kärnell	Researcher	Linköping University	
14:05-14:35	Predictive Analytics - Definition Functionality and Benefits	Alex Lima	Sales Machinery Applications	Bosch Rexroth	
14:35-14:55	Frugal Approach for The Design of a Lower Limbs Rehabilitation System Using Pneumatic Actuators	Rubén D. S. Bolaños	Researcher	UFSC	
		Paul Bogatir	Cluster Manager	Hudiksvalls Hydraulikkcluster	
14:55-16:00	Discussion Panel: Entrepreneurship in a Sustainable Transition	Waldir Viana Jr.	Manager Director	Mitsubishi Chemicals	
		Alessandra Akkari	Professor	IFSUL	

16:00-16:30 **Coffee Break**

16:30-18:30 **Short-Courses A**

16:30-18:30	On-Line Monitoring of The Hydraulic System and Its Advantages (In Portuguese)	Marcel Magre	Service Automation Manager	HYDAC	
16:30-18:30	Force and Impedance Control of Hydraulically-Actuated Robots	Thiago Boaventura	Professor	USP/São Carlos	

18:30-21:00 **Social Gathering**

## 6<sup>th</sup> Workshop on Innovative Engineering for Fluid Power

Venue: ABIMAQ Headquarters, Av. Jabaquara, 2925, São Paulo, Brazil

November 22 - 23, 2022

[laship.ufsc.br/site/en/wiefp2022](http://laship.ufsc.br/site/en/wiefp2022)

### Organization



### Support



## PROGRAM

### Wednesday, Nov 23

**08:00-08:30** Registration

**08:30-10:00** Short-Courses B

<b>08:30-10:00</b>	Proactive Maintenance Engineering in Hydraulic Systems (In Portuguese)	<b>João Luiz de Amorim</b> <b>Luciano Guimarães</b>	Engineers	TCT Hidráulica	
--------------------	--	--	-----------	----------------	--

<b>08:30-10:00</b>	Sizing and Dynamic Properties of Hydro-Mechanical Transmissions for Mobile Machines	<b>Liselott Ericson</b>	Professor	Linköping University	
--------------------	---	-------------------------	-----------	----------------------	--

**10:00-10:30** Coffee Break

**10:30-12:30** Session 4 - Aircraft and Mobile Applications - Chairperson: Liselott Ericson

<b>10:30-10:50</b>	An Estimator for Aircraft Actuator Characteristics Using Singular Value Decomposition	<b>Felix Larsson</b>	Researcher	Linköping University	
--------------------	---	----------------------	------------	----------------------	--

<b>10:50-11:10</b>	Thermohydraulic Modeling of An Electro-Hydraulic Servo Actuator on Damped Mode	<b>Marina B. Pintarelli</b>	Researcher	ITA/EMBRAER	
--------------------	--	-----------------------------	------------	-------------	--

<b>11:10-11:30</b>	Digital Hydraulic Actuators: A Research Overview for Aircraft Control Surfaces	<b>Dimitri O. Silva</b>	Researcher	UNIFESSPA	
--------------------	--	-------------------------	------------	-----------	--

		<b>Kim Stelson</b>	Professor	University of Minnesota	
--	--	--------------------	-----------	-------------------------	--

<b>11:30-12:30</b>	Discussion Panel: Efficient Hydraulic Systems in Off-Highway Vehicles	<b>Carlos Augusto Constantino</b>	Flight Control System Manager	EMBRAER	
--------------------	---	-----------------------------------	-------------------------------	---------	--

		<b>Luiz Góes</b>	Professor	ITA	
--	--	------------------	-----------	-----	--

**12:30-13:45** Lunch Interval

**13:45-16:00** Session 5 - Energy Generation and Efficiency - Chairperson: Victor De Negri

<b>13:45-14:05</b>	Energy Efficiency Analysis and Experimental Test of a Closed-Circuit Pneumatic System	<b>Fedor Nazarov</b>	Researcher	TU Dresden	
--------------------	---	----------------------	------------	------------	--

<b>14:05-14:35</b>	Driving Digital Transformation – Pneumatic Solutions	<b>Gerson Silva</b>	Business Development Manager	Emerson Automation	
--------------------	--	---------------------	------------------------------	--------------------	--

<b>14:35-14:55</b>	Development of Pneumatic Technology for Automation and Control of Small Hydropower Plants	<b>Vinicius Vigolo</b>	Researcher	UFSC	
--------------------	---	------------------------	------------	------	--

		<b>Henrique Raduenz</b>	Engineer	Volvo C.E. AB	
--	--	-------------------------	----------	---------------	--

<b>14:55-16:00</b>	Discussion Panel: Hydraulic Systems Applied in Wind Turbines	<b>Mario Valdo</b>	CEO	SmartSide	
--------------------	--	--------------------	-----	-----------	--

		<b>Victor De Negri</b>	Professor	UFSC	
--	--	------------------------	-----------	------	--

**16:00-16:30** Coffee Break

**16:30-18:00** Short-Courses C

<b>16:30-18:00</b>	Practical Method for Identification and Compensation of Dead Zone in Directional Spool Valves (In Portuguese)	<b>Antonio C. Valdiero</b>	Professor	UFSC	
--------------------	---	----------------------------	-----------	------	--

<b>16:30-18:00</b>	Sizing and Design of Hydraulic Positioning Systems	<b>Marcos P. Nostrani</b>	Professor	UFSC	
--------------------	--	---------------------------	-----------	------	--

<b>18:00-18:15</b>	Concluding Remarks	<b>Victor De Negri</b> <b>Petter Krus</b> <b>Luciana Pereira</b>	Professor Professor Professor	UFSC LiU UFABC	
--------------------	--------------------	--	-------------------------------------	----------------------	--