

The 3<sup>rd</sup> Workshop on Innovative Engineering for Fluid Power brings together Brazilian, Swedish, and International industry and academia, interested in this evolving field of fluid power, driver, actuation, mechatronics, and control systems present in almost all industrial and commercial sectors.

The WIEFP aims to promote collaboration in development of technologies, education, innovation management, and methods and tools for system development and design.



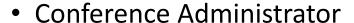




#### Organizers - WIEFP2016



- General Co-Chairs
  - Victor J. De Negri (victor.de.negri@ufsc.br)
    - Federal University of Santa Catarina, Brazil
  - Petter Krus (petter.krus@liu.se)
    - Linköping University, Sweden
  - Luciana Pereira (luciana.pereira@ufabc.edu.br)
    - Federal University of ABC, Brazil



- Henrique Raduenz (henrique@laship.ufsc.br)
  - Federal University of Santa Catarina, Brazil
- Chair CISB
  - Alessandra Holmo (alessandra.holmo@cisb.org.br)
    - Swedish-Brazilian Research and Innovation Centre
- Chair CSHPA/ ABIMAQ
  - Gustavo M. Szymsiowicz (gustavo.marcelo@abimaq.org.br)
    - Chamber for Hydraulic, Pneumatic and Automation Equipment



























### **PROGRAM**



	WIEFP <sub>2016</sub>	WIEFP / FPNI		FPN		
	Tuesday - Oct. 25	Wednesda	y - Oct. 26	Thursday - Oct. 27	Friday - Oct. 28	
08:00 - 08:30		Carata a Manda	Transp. UFSC	Session Thu1	Session Fri1	08:00 - 08:30
08:30 - 09:00	FPNI attendees: Transp. UFSC	Session Wed1 3 WIEFP Inv. S.	FPNI	5 FPNI papers	5 FPNI papers	08:30 - 09:00
09:00 - 09:30	Registration&Coffee	3 WILIT IIIV. 3.	Registration	Discussion	Discussion	09:00 - 09:30
09:30 - 10:00	WIEFP2016	Coffee break	&Exhibition	Keynote speaker	Keynote speaker	09:30 - 10:00
10:00 - 10:30	Session Tue1	Session	Wed2	Coffee break&Exhibition	Coffee break&Exhibition	10:00 - 10:30
10:30 - 11:00	Welcome	Welcome &		Session Thu2	Session Fri2	10:30 - 11:00
11:00 - 11:15	2 WIEFP Invited Speakers	1 WIEFP Invited Speaker 3 FPNI papers		5 FPNI papers	5 FPNI papers	11:00 - 11:15
11:15 - 12:00	Keynote speaker - Gold			Discussion	Discussion	11:15 - 12:00
12:00 - 12:30	Lunch&Exhibition	Lunch&Exhibition		Lunch	Lunch	12:00 - 12:30
12:30 - 13:00	EditarioExtribition			Lanch	Lutteri	12:30 - 13:00
13:00 - 13:30				Session Thu3	Session Fri3	13:00 - 13:30
13:30 - 14:00	Session Tue2		Session Wed3  2 WIEFP Invited Speakers  2 WIEFP Invited Speakers	4 FPNI papers	13:30 - 14:00	
14:00 - 14:30	4 WIEFP Invited Speakers	2 WIEFP Invite	•	Discussion	Discussion	14:00 - 14:30
14:30 - 15:00				Keynote speaker	Keynote speaker	14:30 - 15:00
15:00 - 15:30	Coffee break&Exhibition	Coffee break	&Exhibition	Coffee break&Exhibition	Coffee break&Exhibition	15:00 - 15:30
15:30 - 16:15	Keynote speaker - Gold			Session Thu4	Session Fri4	15:30 - 16:00
16:15 - 16:30		Session		4 FPNI papers	4 FPNI papers	16:00 - 16:30
16:30 - 17:00	Session Tue3		IEFP Invited Speakers 3 FPNI papers	Discussion	Discussion + Final Remarks	16:30 - 17:00
17:00 - 17:30	3 WIEFPInvited Speakers				Best paper award	17:00 - 17:30
17:30 - 17:45		WIEFP Final	Discussion		FPNI meeting	17:30 - 17:45
18:00	Visit to LASHIP	Laborato	ny narty			
19:00	FPNI attendees: Transp. Hotel	Laborator	ry party		Farawall party	19:00
20:00		Transportation to Jurerê Hotel		Conference dinner	Farewell party	20:00
	Venue: Campus of UFSC	Venue: Camp	ous of UFSC	Venue: Jurerê Be		









# WIEFP Program



Tuesday, Oct	25				
09:00-10:00	Registration & coffee				
10:00-12:00	Session Tue 1 - Introduction - H&P Applications - Chair	: Victor De Negri, UFSC			
10.00 10.15	Walcome and introduction	Petter Krus Director of FLUMES FLUMES/LiU		FLUMES/LiU	
10:00-10:13	Welcome and introduction	Luciana Pereira	Associate Professor	UFABC	•
10:15-10:45	Hydrostatic transmissions and actuators -	Gustavo K. Costa	Associate Professor	IEDE	
10.15-10.45	overview and applications	Gustavo N. Gusta	ASSOCIATE PTOTESSOI	IFFE	
10:45-11:15	4EE - Eficiência Energética de Alta Performance	Wagner Mattos	Manager	Bosch Rexroth	•
10.45-11.15	para o Acionamento de Máquinas Hidráulicas	wagner mattus	ivialiagei	DUSCII KEXIULII	
11:15 12:00	Aircraft Hydraulic System Technologies	Birgitta Lantto	R&D Engineer	Saab AB	
11.13.12.00	Anciait nyuraune System rechnologies	Magnus Landberg	Senior Engineer	Saab AB	
12:00-13:00	Lunch and Exhibition				







# WIEFP Program



12:00-13:00	Lunch and Exhibition		•	•	
13:00-15:00	Session Tue 2 - Innovation - Automation and Control - Cl	hair: Luciana Pereira, l	JFABC		
13:00-13:45	Research on hydraulic wind turbines of Yanshan University	Xiangdong Kong	Vice-President	Yanshan University	*)
13:45-14:00	Open innovation platform between Brazil and Sweden	Alessandra Holmo	Innovation Engineer	CISB	6
14:00-14:30	Application of advanced control functions for double regulated turbines at the Jirau power plant	Henrique Menarin	R&D Engineer	Reivax	6
14:30-15:00	DIGITAL SERVOVALVES – The smart approach to electrohydraulic motion control	Mario Valdo	General Manager	Moog	6
15:00-15:30	Coffee Break & Exhibition				
15:30-17:45	Session Tue 3 - System and Component Modelling - Cha	ir: Jonny Silva, UFSC			
15:30-16:15	Predictive Engineering Analytics	André Oliveira	Manager	Siemens/LMS	•
16:15-16:45	Advanced modeling techniques and innovations in external gear pumps	Andrea V acca	Professor	Maha/Purdue University	
16:45-17:15	Bond-Graph Modeling and System Identification of Flight Actuation Systems: EHS, EHA, and MEA	Luiz Góes	Professor Research Dean	ITA	6
17:15-17:45	Construction of low-order models for wave propagation in arbitrary 3D geometries	Bernhard Manhartsgruber	Professor	Johannes Kepler University	
18:00-19:00	Visit to LASHIP				







## WIEFP + FPNI Program



Wednesday,	Oct 26	-								
08:00-09:30	Session Wed 1 - H&P Applications- Chair: Edson De Pier	ri, UFSC								
08:00-08:30	Design of Safe, Reliable and Efficient Electro- Hydraulic Systems for Subsea Applications	Alexandre Orth	Manager	Bosch Rexroth						
08:30-09:00	Solutions for Valve Process Automation	Maurício Garcia	Director	Ascoval	<b>(</b>					
09:00-09:30	Challenges and opportunities in fluid power for agriculture machines	Leandro Santos Murilo Oliveira	R&D Engineer R&D Engineer	CNHi CNHi	<b>♦</b>					
09:30-10:00	Coffee break & Exhibition									
10:00-12:00	Session Wed 2 - Introduction - Hydraulic Actuators - Chair: Andrea Vacca, Purdue University									
10:00-10:15	Welcome	Victor De Negri	Professor Head of LASHIP	LASHIP/UFSC	<b>(</b>					
10:15-10:30	ABIMAQ - Chamber for Hydraulic, Pneumatic and Automation Equipment: Brazilian Market Overview	Maurício Garcia	Vice-President CSHPA	CSHPA/ABIMAQ	•					
10:30-11:00	Challenges and Opportunities for Fluid Power	Monika Ivantysynova	Professor Diretor of Maha	Maha/Purdue University						
11:00-11:15	Design and Research on a Hydraulic Cylinder with Plastic Components	Piotr Stryczek	FPNI presenter	Wroclaw University						
11:15-11:30	Motion Control Concepts for the Hydraulic Infinite Linear Actuator	Martin Hochwallner	FPNI presenter	Linköping University	==					
11:30-11:45	Virtual Environment with AMESim and its Integration with Matlab-Simulink	Rafael Tovo	FPNI presenter	Embraer	<b>(</b>					
11:45-12:00	Discussion									
12:00-13:00	Lunch & Exhibition									











# WIEFP + FPNI Program



A Park-like transform for fluid power systems: application to pneumatic stiffness control  13:30-14:00 Pneumatic control microfluidic systems and applications Exonomy analysis for the selection of the most cost-effective pneumatic drive solution  14:10-14:15 Design and implementation of supervisory control for electro-pneumatic station subject to faults Trajectory Planning Based on Firefly Metaheuristic Algorithm Applied to Pneumatically Driven Robots  14:40-14:45 Discussion  15:30-17:45 Design and implementation of supervisory control for electro-pneumatic station subject to faults Trajectory Planning Based on Firefly Metaheuristic Algorithm Applied to Pneumatically Driven Robots  When will it Break? Prognostics and Health Management at NASA Why Condition Monitoring? Success case on Blow Moulding Machines Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  16:40-17:00 LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  17:00-17:15 Estimation for Moving-Coil Based Digital Valves  Victor De Negri Potes V Harbin Institute of Technology  Professor University Intend of Technology  Harbin Institute of Technology  Harbin Institute of Technology  Harbin Institute of Technology  Harbin Institute of Technology  Rodrigo Szpak FPNI presenter  UFSC  III Anselme Rafael Cukla  FPNI presenter  VIFGS  Area Lead  Nasa Ames  Waldir Vianna Jr.  Anders Hedegaard Hansen  FPNI presenter  Aalborg University  FPNI presenter  Aalborg Univers	13:00-15:00	Session Wed 3 - Pneumatic Systems - Chair: Petter Krus,	Linköping University						
application to pneumatic stiffness control  3:30-14:00 Pneumatic control microfluidic systems and applications Exonomy analysis for the selection of the most cost-effective pneumatic drive solution  4:10-14:15 Design and implementation of supervisory control for electro-pneumatic station subject to faults Trajectory Planning Based on Firefly Metaheuristic Algorithm Applied to Pneumatically Driven Robots  4:45-15:00 Discussion  When will it Break? Prognostics and Health Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  6:30-16:45 Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  Moulding Feathuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  7:30-17:45 WIEFP Final Discussion  Victor De Negri  Professor  Harbin Institute of Technology  FPNI presenter  TU Dresden  Rodrigo Szpak  FPNI presenter  UFSC  Whale Walding Szpak  FPNI presenter  UFRGS  FPNI presenter  UFRGS  WHARBAGOVA  FPNI presenter  UFRGS  FPNI presenter  UFRGS  Anselmo Rafael  Cukla  FPNI presenter  WHRGS  Anselmo Rafael  FPNI presenter  UFRGS  Anselmo Rafael  FPNI presenter  WHRGS  Anselmo Rafael  FPNI presenter  WHRGS  Anselmo Rafael  FPNI presenter  WHRGS  Anselmo Rafael  FPNI presenter  Alloor University Hansen  Nea Lead  Nasa Ames  Maldir Vianna Jr.  Anders Hedegaard  Hansen  Neals Henrik  FPNI presenter  Aalborg University	2-00 42-20	A Park-like transform for fluid power systems:	E . D						
Area Lead  When will it Break? Prognostics and Health Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  Le:45-17:00  Le:45-17:30  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  Le:400-17:45  Elvira Rakova  Elvira Rakova  FPNI presenter  Tu Dresden  Tou Dres	19.00-19:30	application to pneumatic stiffness control	Eric Bideaux	Protessor	University of Lyon				
applications Exonomy analysis for the selection of the most cost-effective pneumatic drive solution Design and implementation of supervisory control for electro-pneumatic station subject to faults Trajectory Planning Based on Firefly Metaheuristic Algorithm Applied to Pneumatically Driven Robots 14:45-15:00 Discussion 15:00-15:30 Coffee Break & Exhibition 15:30-17:45 Session Wed 4 - Digital and Switched Hydraulics - Chair: Bernhard Manhartsguber, Johannes Kepler University Linz 16:30-16:00 When will it Break? Prognostics and Health Management at NASA Why Condition Monitoring? Success case on Blow Moulding Machines 16:30-16:45 Discrete Fluid Power Force Systems 16:45-17:00 LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power 17:00-17:15 Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves 17:30-17:45 WIEFP Final Discussion  Elvira Rakova FPNI presenter  Tu Dresden  Rodrigo Szpak FPNI presenter  Tu Dresden  Tu Dresden  FPNI presenter  UFRGS  UFRGS  WIFFG  Anselmo Rafael Cukla  FPNI presenter  UFRGS  UFRGS  WHR Waldir Vianna Jr.  Area Lead  Nasa Ames  Waldir Vianna Jr.  Anders Hedegaard Hansen  Niels Henrik Pedersen FPNI presenter  Aalborg University FPNI presenter  Alborg University FPNI presenter  Aalborg University FPNI presenter  Anders Hedgaard Hansen  FPNI presenter  Aalborg University FPNI presenter  Area Lead  Area Lead  Area	12.20 14.00	Pneumatic control microfluidic systems and	Condinali	Professor	Harbin Institute of				
Cost-effective pneumatic drive solution  14:15-14:30 Design and implementation of supervisory control for electro-pneumatic station subject to faults Trajectory Planning Based on Firefly Metaheuristic Algorithm Applied to Pneumatically Driven Robots 14:45-15:00 Discussion  15:00-15:30 Defe Break & Exhibition  15:30-16:00 When will it Break? Prognostics and Health Management at NASA Why Condition Monitoring? Success case on Blow Moulding Machines Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  16:30-16:45 Discussion  Waldir Vianna Jr. Anders Hedegaard Honsen Honsen  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:30-17:45 WIEFP Final Discussion  Rodrigo Szpak FPNI presenter  Washing Szpak FPNI presenter  UFSC  When will impresenter  UFGS FPNI presenter  UFGS  FPNI presenter  UFGS  FPNI presenter  UFGS  FPNI presenter  UFGS  FPNI presenter  UFGS  FPNI presenter  UFGS  FPNI presenter  UFGS  FPNI presenter  Cukla  FPNI presenter  Alborg University FPNI presenter  FPNI presenter  Alborg University FPNI presenter  Alborg University FPNI presenter  FPNI pres	15:30-14:00	applications	Songjing Li	Head of	Technology	×.:			
cost-effective pneumatic drive solution Design and implementation of supervisory control for electro-pneumatic station subject to faults Trajectory Planning Based on Firefly Metaheuristic Algorithm Applied to Pneumatically Driven Robots  14:45-15:00 Discussion  15:00-15:30 Coffee Break & Exhibition  15:30-17:45 Session Wed 4 - Digital and Switched Hydraulics - Chair: Bernhard Manhartsguber, Johannes Kepler University Linz  When will it Break? Prognostics and Health Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  16:30-16:45  16:45-17:00 LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  17:00-17:15 Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:30-17:45 WIEFP Final Discussion  Rodrigo Szpak  FPNI presenter  UFSC  Warding Szpak  FPNI presenter  Anselmo Rafael  Cukla  FPNI presenter  Warding Wanhartsguber, Johannes Kepler University Linz  Kai Goebel  Area Lead  Nasa Ames  Waldir Vianna Jr.  Anders Hedegaard Hansen  FPNI presenter  Aalborg University  Analborg University  FPNI presenter  Aalborg University  FPNI presenter  FPNI presenter  Aalborg University  FPNI presenter  FPNI presenter  Aalborg University  FPNI presenter	14:00 14:15	Exonomy analysis for the selection of the most	Elviro Bokovo	EDNI procentor	TII Droedon				
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Algorithm Applied to Pneumatically Driven Robots  14:45-15:00  Discussion  15:00-15:30  Coffee Break & Exhibition  15:30-17:45  Session Wed 4 - Digital and Switched Hydraulics - Chair: Bernhard Manhartsguber, Johannes Kepler University Linz  When will it Break? Prognostics and Health Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  16:45-17:00  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30  Discussion  Victor De Negri  PNI presenter  UFRGS  FPNI presenter  Alborg University  FPNI presenter  FPNI presenter	14.13-14.30	for electro-pneumatic station subject to faults	Rourigo 32pak	i Fivi presentei	UF3C	9			
Algorithm Applied to Pneumatically Driven Robots  14:45-15:00  Discussion  15:00-15:30  Coffee Break & Exhibition  15:30-17:45  Session Wed 4 - Digital and Switched Hydraulics - Chair: Bernhard Manhartsguber, Johannes Kepler University Linz  When will it Break? Prognostics and Health Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Turbines Featuring a Digital Fluid Power  Through Transport With On-Line Parameter Estimation for Moving-Coil Based Digital Valves  Transport Robots  Cukla  Cukla  Cukla  Cukla  Cukla  Calculate Anders Health Manhartsguber, Johannes Kepler University Linz  Area Lead  Nasa Ames  Argo-Hytos AT  Alborg University  FPNI presenter  Alborg University  Christian Noergaard  FPNI presenter  Alborg University  FPNI presenter  Professor	14.30-14.45	Trajectory Planning Based on Firefly Metaheuristic	Anselmo Rafael	EDNI procentor	HEDGS				
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15:30-17:45 Session Wed 4 - Digital and Switched Hydraulics - Chair: Bernhard Manhartsguber, Johannes Kepler University Linz  When will it Break? Prognostics and Health Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30  Interview	14:45-15:00	Discussion							
When will it Break? Prognostics and Health Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30  Waldir Vianna Jr. General Manager  Anders Hedegaard Hansen  FPNI presenter  Alborg University  Christian Noergaard FPNI presenter  Alborg University  Christian Noergaard FPNI presenter  Alborg University  FPNI presenter  Alborg University  FPNI presenter  Alborg University  Victor De Negri  Professor  UFSC	15:00-15:30	Coffee Break & Exhibition							
Management at NASA  Why Condition Monitoring? Success case on Blow Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  Maldir Vianna Jr.  General Manager  Argo-Hytos AT  Alborg University  Pedersen  Christian Noergaard FPNI presenter  Aalborg University  Christian Noergaard FPNI presenter  Aalborg University  Christian Noergaard FPNI presenter  Aalborg University  Victor De Negri  Professor  UFSC	15:30-17:45	Session Wed 4 - Digital and Switched Hydraulics - Chair:	Bernhard Manhartsgu	ber, Johannes Kepler	University Linz				
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Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30  Maldir Vianna Jr.  Anders Hedegaard Hansen  FPNI presenter  FPNI presenter  Alborg University  Christian Noergaard  FPNI presenter  Alborg University  Alborg University  Victor De Negri  Professor  UFSC	15.50-10.00	Management at NASA	Nai doebei	Alea Lead	Nasa Allies				
Moulding Machines  Reducing fatigue loading due to pressure shift in Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30 Discussion  Moulding Machines  Reducing fatigue loading due to pressure shift in Discussion  Anders Hedegaard Hansen  Niels Henrik Pedersen  Christian Noergaard  FPNI presenter  Alborg University  Alborg University  Victor De Negri  Professor  UFSC	16:00-16:30	Why Condition Monitoring? Success case on Blow	Waldir Vianna Ir	General Manager	Argo.Hutos AT	6			
Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30  Discussion  Hansen  Niels Henrik Pedersen  Christian Noergaard  FPNI presenter  FPNI presenter  Alborg University  Alborg University  Tribination FPNI presenter  Alborg University  Victor De Negri  Professor  UFSC	10.00-10.50	Moulding Machines	Waldin Viailila 31.	deficial Mariage	Algo-liytos Al				
Discrete Fluid Power Force Systems  LQR Feedback Control Development for Wind Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30  Discussion  WIEFP Final Discussion  Hansen  Niels Henrik Pedersen  Christian Noergaard  Christian Noergaard  Victor De Negri  Professor  UFSC	16-30-16-45	Reducing fatigue loading due to pressure shift in	Anders Hedegaard	FPNI presenter	Aalhorg University				
Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30  Discussion  WIEFP Final Discussion  FPNI presenter  Christian Noergaard  FPNI presenter  Alborg University  Christian Noergaard  Victor De Negri  Professor  UFSC	10.30-10.43	Discrete Fluid Power Force Systems	Hansen	Trivi presenter	Adiborg University				
Turbines Featuring a Digital Fluid Power  Motion Observer with On-Line Parameter Estimation for Moving-Coil Based Digital Valves  17:15-17:30 Discussion  Victor De Negri  Pedersen  Christian Noergaard FPNI presenter  Aalborg University  Victor De Negri  Professor  UFSC	16-45-17-00	LQR Feedback Control Development for Wind	Niels Henrik	FPNI presenter	Aalborg University				
Estimation for Moving-Coil Based Digital Valves  Christian Noergaard FPNI presenter Aalborg University  Discussion  Victor De Negri Professor  UFSC	10.49-11.00	Turbines Featuring a Digital Fluid Power	Pedersen						
Estimation for Moving-Coil Based Digital Valves  17:15-17:30 Discussion  Victor De Negri Professor  UFSC	17:00-17:15	Motion Observer with On-Line Parameter	Christian Noergaard	FPNI presenter	Aalhorg University				
Victor De Negri Professor UFSC		Estimation for Moving-Coil Based Digital Valves	Jiii Stiaii Hooi Saaiu	THE PROJECTION	Adibola officially				
17:30-17:45 WIEFP Final Discussion	17:15-17:30	Discussion							
Petter Krus Professor LiU	17:30-17:45	WIFFP Final Discussion	Victor De Negri	Professor	UFSC				
		THE I THAT DISCUSSION	Petter Krus	Professor	LiU				

### **Sponsors & Participants**



## • Industry:

- Argo-Hytos
- Ascoval
- Bosch Rexroth
- Camozzi
- CNHi
- Moog
- NASA
- Saab
- Siemens
- Reivax

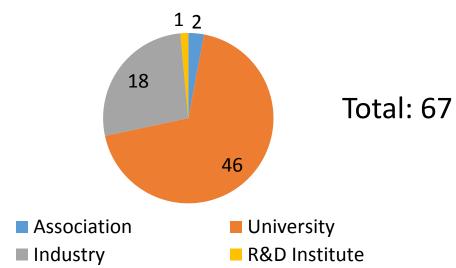
#### Associations:

- CSHPA/ABIMAQ
- CISB

#### Academy:

- IFPE
- ITA
- UNIJUI
- UFRGS
- UFSC

#### WIEFP2016: N° Participants/Sector









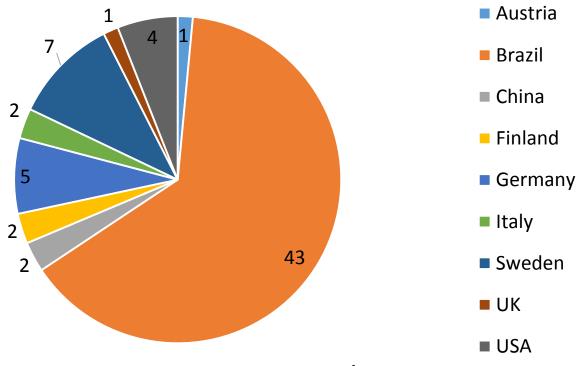




## **Participants**



#### **WIEFP: N° Participants/Country**













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