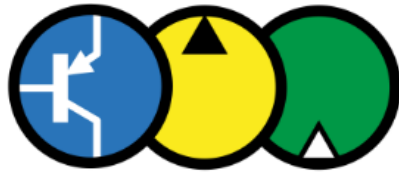




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LASHIP
Laboratory of Hydraulic and Pneumatic Systems

Prof. Victor Juliano De Negri

Founded: 1960

Campus area: 1 km²

Faculty: 2,050

Staff: 3,113

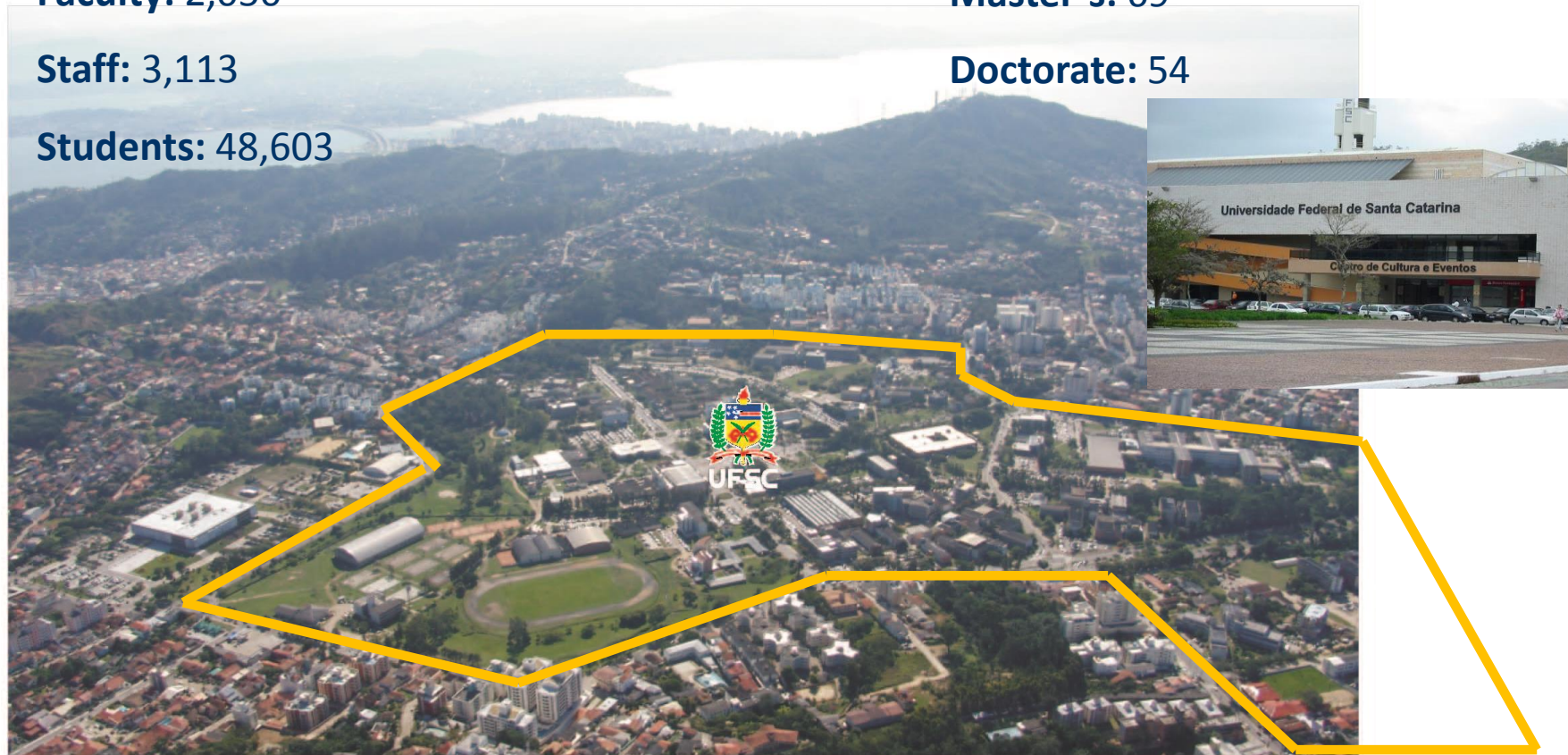
Students: 48,603

Number of courses:

Undergraduate: 117

Master`s: 69

Doctorate: 54



- Established in 1962
 - Occupied area: 16.000 m²
 - Expansion: 4.000 + 8.000 m²
- People (March 2014):
 - 69 academic staff
 - 1.438 students (Undergraduate and graduate)
- Research:
 - 23 Research groups
 - 400 Assistants (undergraduate students)



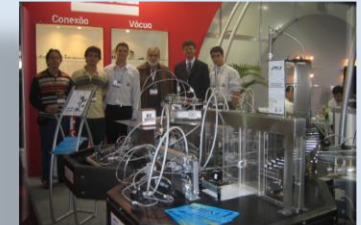
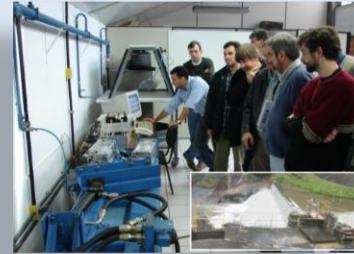
- Undergraduate courses:
 - Mechanical Engineering (1962)
 - Material Engineering (1999)
- Graduate Programs (M.Eng. & D.Eng.)
 - Mechanical Engineering (1969)
 - Material and Sciences Engineering (1994)



- Professors:

- Irlan von Linsingen
- Jonny Carlos da Silva
- Victor Juliano De Negri
- Yesid Ernesto Asaff Mendoza

Industry-University Partnership



Academic Cooperation



SAAB



Go Further

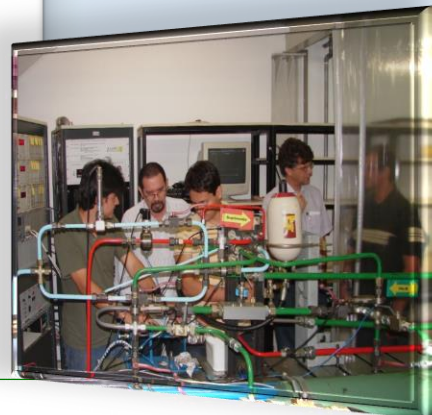
VOLVO

Rexroth
Bosch Group



- Current Collaborations

- Acires Dias (NeDIP)
- Edson R. De Pieri (DAS)
- Eugênio de B. Castelan Neto (DAS)
- Amir Oliveira Jr. (LABCET)
- Petter Krus (FLUMES, LiU)



Efficient Hydraulic Hybrid Systems for Aeronautical Applications

- Development of innovative hydraulic systems with increased energy efficiency for aircraft onboard systems

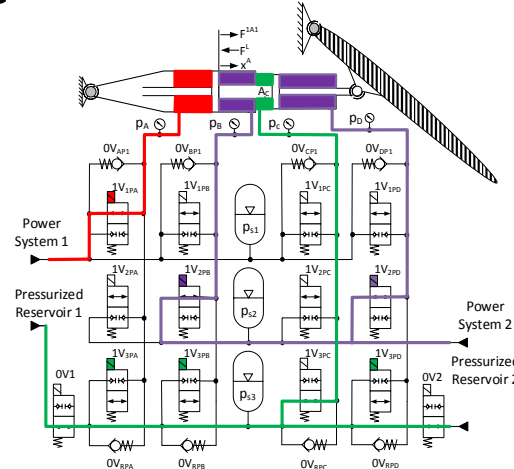
- Focus on flight control actuation:

- Actuation systems
- Hydraulic power unit



- Actuation systems based on **Digital Hvdraulics**

PhD Sudent (2014-2017)
Henri C. Belan



Energy save
(%)

Alternative designs

Line All System

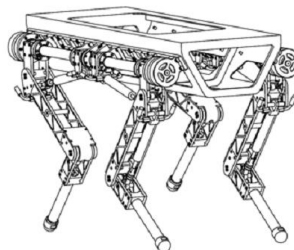
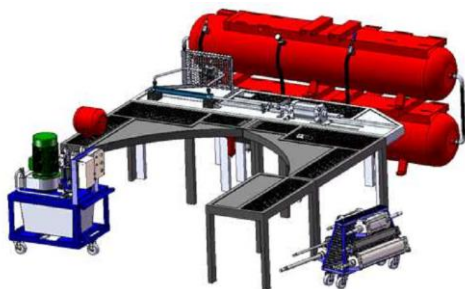
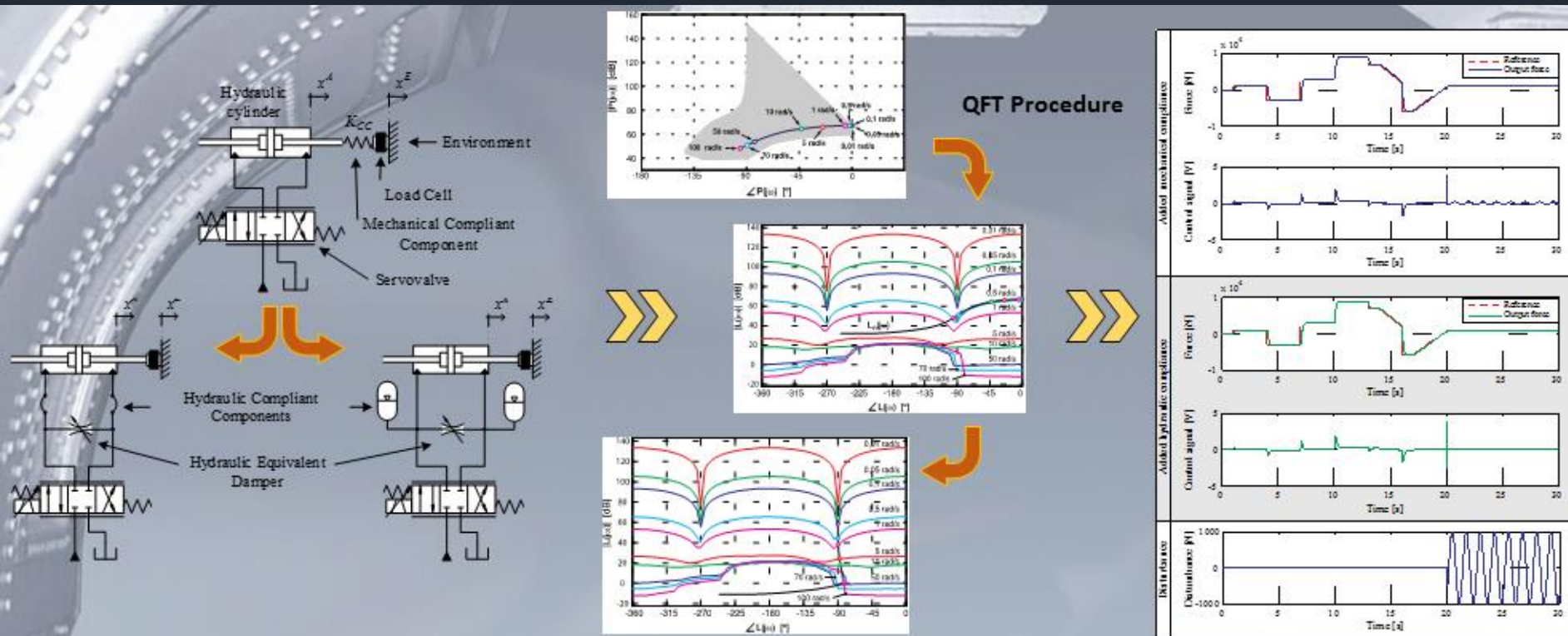
Hydraulic System 1

I	EM + Jet	25,4	12,4
II	EM + FDP I + Jet + FDP II + FDP III	20,5	10,0
III	EM + FDP I + Jet + FDP II + FDP III	22,0	10,7
IV	EM + FDP I + Jet + VDP	25,0	12,2

- Hybrid Hydraulic Power Units

PhD Sudent (2014-2017)
Cristiano C. Locateli

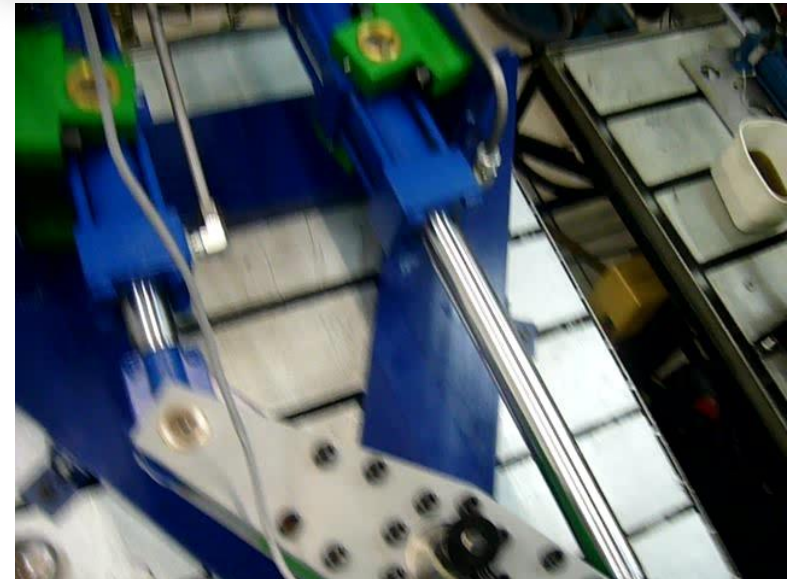
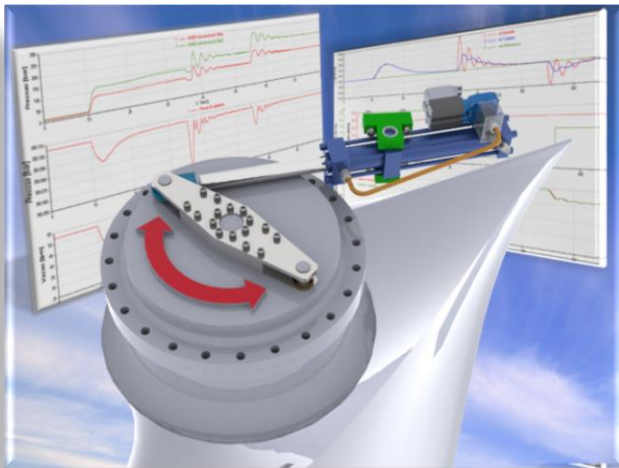
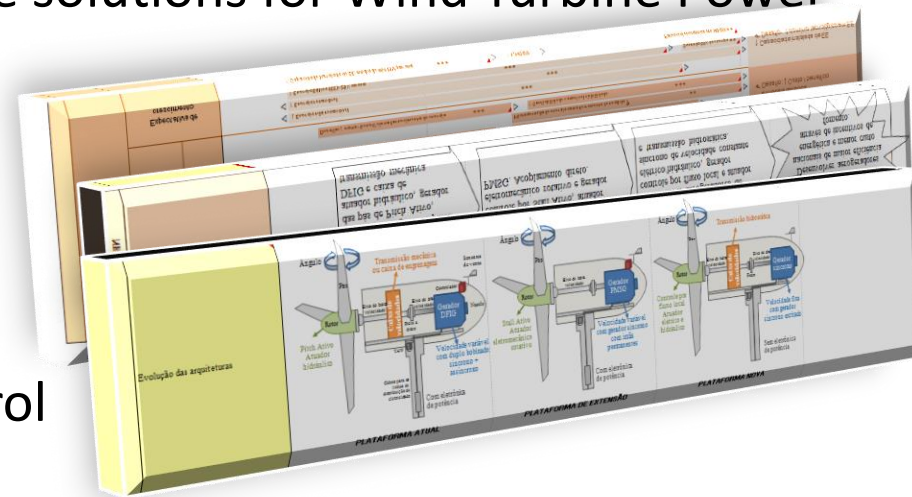
Force Control using Variable Compliance Hydraulic Actuators



PhD Student (2012-2017):
Job Angel Ledezma

Technological Mapping and Innovative solutions for Wind Turbine Power Governors

- Technological Mapping and Innovative solutions for Wind Turbine Power Governors
 - Technology prospection
 - Requirement analysis
 - Design and prototype construction
- Switched hydraulics for position control



Hydrostatic Transmission for Rotor – Generator Coupling

- Test rig for proof of concept evaluation
 - 8.5 m high to include the effects of height difference;
 - 28 kW; Off-the-shelf components;
 - System connected to the grid;



**Master's students
2012**

Eduardo Flesch

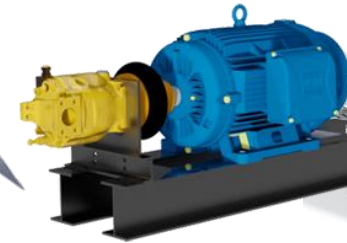
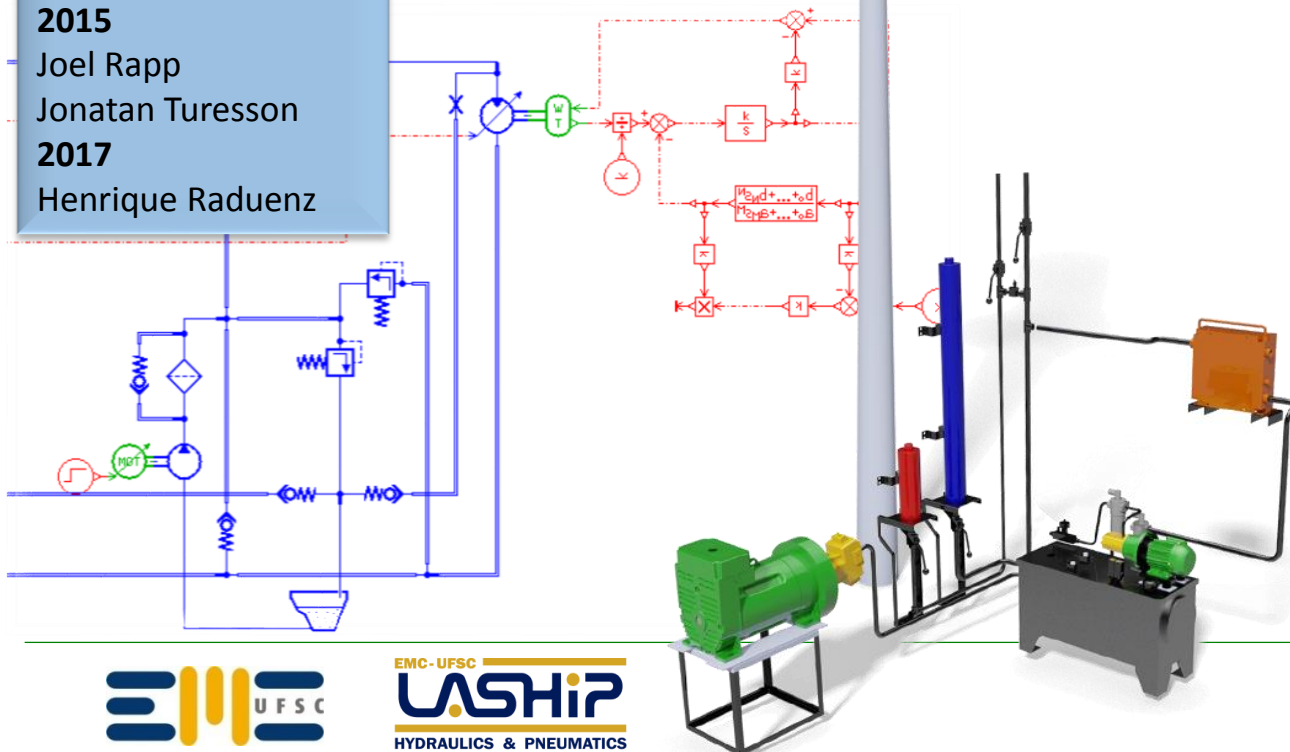
2015

Joel Rapp

Jonatan Turesson

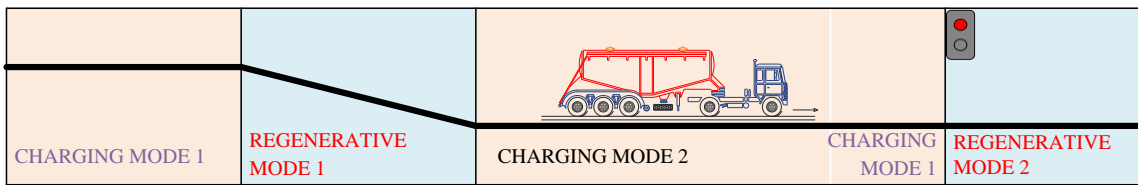
2017

Henrique Raduenz

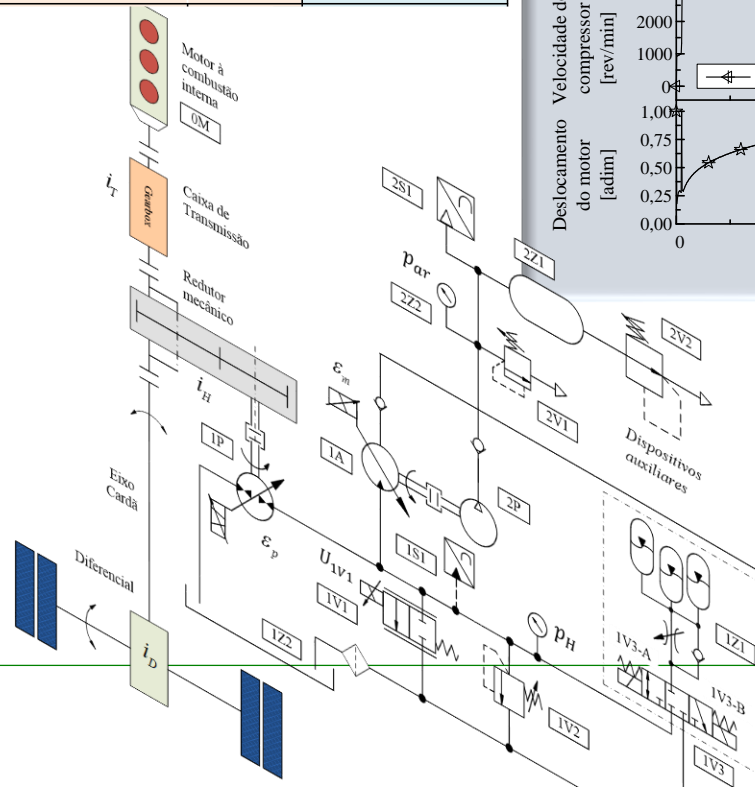
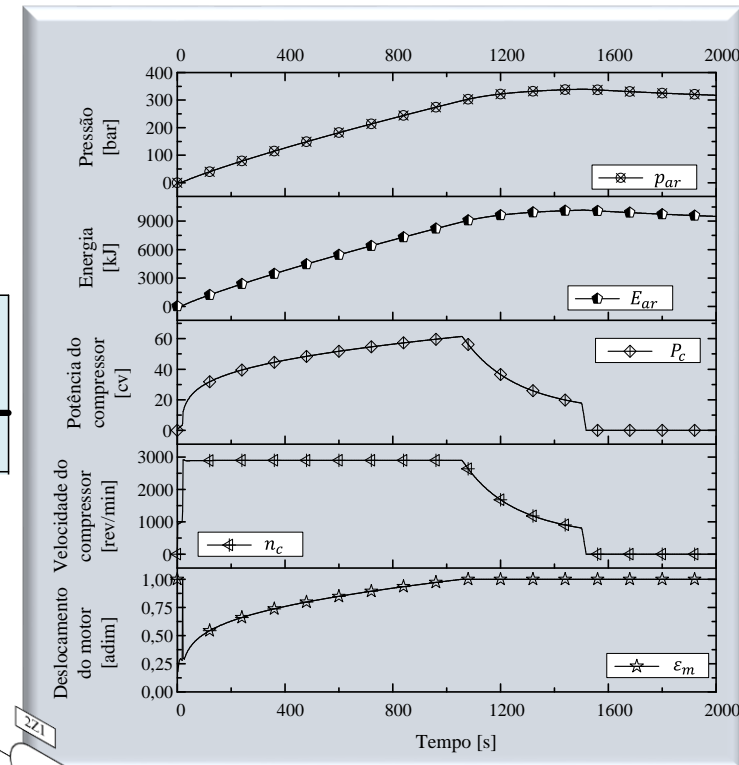


Regenerative Hydraulic-Pneumatic Braking System for Medium and Heavy-Duty Vehicles

- Regenerative breaking system
 - For downward slope on a highway
 - For braking to full stop
 - To assist vehicle in tractive effort

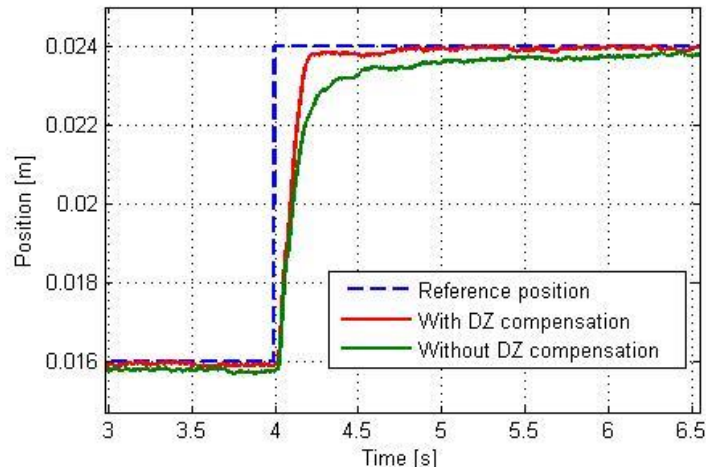


Ph.D. Student (2013-2016)
Rafael Bravo

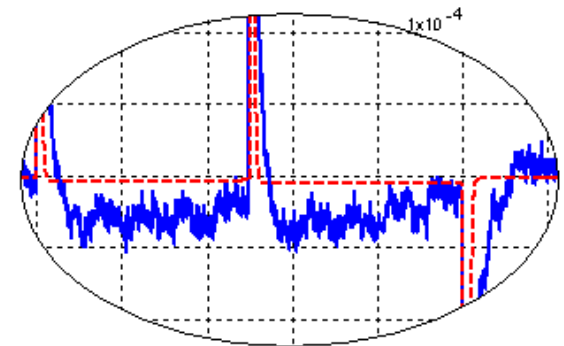
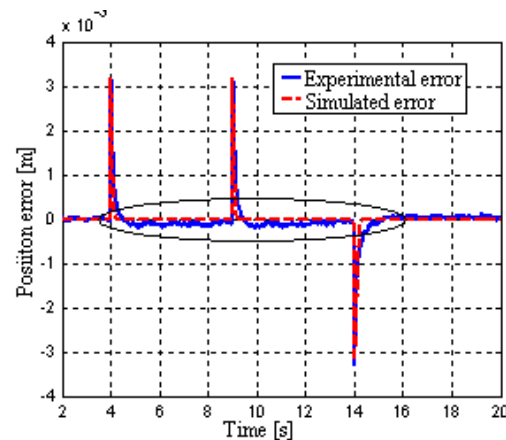
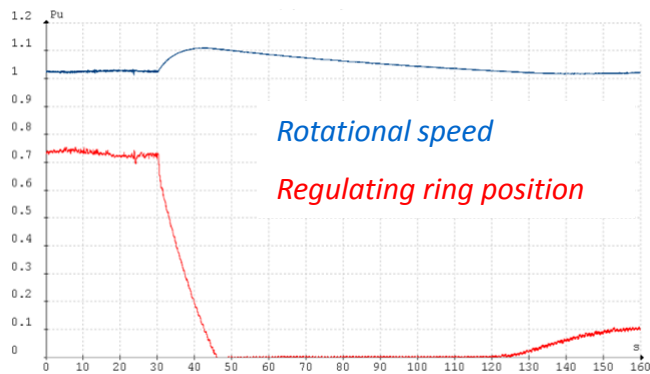


Pneumatic Speed Governor for Small Hydroelectric Power Plants

Laboratory tests



Tests in Field

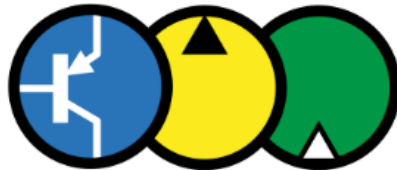




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