

General Overview

Wednesday 24 <sup>th</sup> , 2015			Thursday 25 <sup>th</sup> , 2015			Friday 26 <sup>th</sup> , 2015		
08:30	Registration							
09:30	Opening ceremony							
10:00	Invited Lecture 1		10:00	Invited Lecture 2		10:00	Invited Lecture 3	
11:00	Coffee Break		11:00	Coffee Break		11:00	Coffee Break	
11:20	Session 1.1 Power Quality 1	Session 1.2 Power Electronics 1	11:20	Session 2.1 Power Quality 3	Session 2.2 Power Electronics 3	11:20	Session 3.1 Power Quality 5	Session 3.2 Power Electronics 5
		Session 1.3 EM Energy Conversion 1			Session 2.3 SS Smart-Grid 2			Session 3.3 EM Energy Conversion 3
12:50	Lunch		12:50	Lunch		12:50	Closing Ceremony	
14:00	Invited Lecture 2		14:00	Session 2.4 Power Quality 4		14:00	Session 2.5 Power Electronics 4	
15:00	Session 1.4 EM Energy Conversion 2	Session 1.5 Power Electronics for Power Systems 1			Session 2.6 High Tc Superconducting Technologies for Smart Grids			
		Session 1.6 SS Smart-Grid 1	15:40	Coffee Break		15:40	Lunch	
16:40	Coffee Break		16:00	Session 2.7 Power Electronics for Power Systems 2		16:00	Session 2.8 SS Monitoring & Control of Electric Power Systems	
17:00	Session 1.7 Power Quality 2	Session 1.8 Power Electronics 2	18:30	Bus transfer to Lisbon & Conference Dinner				
18:45	Welcome cocktail							

Wednesday, June 24 <sup>th</sup> , 2015			
8:30 – 9:30	Registration - Atrium Building VII		
9:30 – 10:00 Room 1D	Opening Ceremony		
10:00 – 11:00 Room 1D	Invited Lecture 1 – Modulation of Power Converters: A Key Role in Power Electronics <i>Prof. Jose I. Leon</i>		
11:00 – 11:20	Coffee Break		
	Parallel Sessions A		
11:20 – 12:50	Session 1.1 Power Quality 1	Session 1.2 Power Electronics 1	Session 1.3 EM Energy Conversion 1
12:50 – 14:00	Lunch		
14:00 – 15:00 Room 1D	Invited Lecture 2 – Control Methods for Power Electronic Converters in Power Quality <i>Prof. Fernando Silva</i>		
	Parallel Sessions B		
15:00 – 16:40	Session 1.4 EM Energy Conversion 2	Session 1.5 Power Electronics for Power Systems 1	Session 1.6 SS Smart Grid 1
16:40 – 17:00	Coffee Break		
	Parallel Sessions C		
17:00 – 18:40	Session 1.7 Power Quality 2		Session 1.8 Power Electronics 2
18:45 – 20:00	Welcome Cocktail		

Thursday, June 25 <sup>th</sup> , 2015			
10:00 – 11:00 Room 1A	<b>Invited Lecture 3</b> – Automotive Electronics and its Impacts on Production <i>Eng. Alexandre Lúcia</i>		
11:00 – 11:20	Coffee Break		
11:20 – 12:50	Parallel Sessions D		
	Session 2.1 Power Quality 3	Session 2.2 Power Electronics 3	Session 2.3 SS Smart Grid 2
12:50 – 14:00	Lunch		
14:00 – 15:40	Parallel Sessions E		
	Session 2.4 Power Quality 4	Session 2.5 Power Electronics 4	Session 2.6 High Temperature Superconducting Technologies for Smart Grids
15:40 – 16:00	Coffee Break		
16:00 – 18:00	Parallel Sessions F		
	Session 2.7 Power Electronics for Power Systems 2		Session 2.8 SS Monitoring & Control of Electric Power Systems
18:30	Bus Transfer to Lisbon – <b>Conference Dinner</b>		

Friday, June 26 <sup>th</sup> , 2015			
10:00 – 11:00 Room 1A	<b>Invited Lecture 4</b> – Topologies and Control Methods of Modern PWM Converters for Renewable Energy <i>Prof. Mariusz Malinowski</i>		
11:00 – 11:20	Coffee Break		
11:20 – 12:50	Parallel Sessions G		
	Session 3.1 Power Quality 5	Session 3.2 Power Electronics 5	Session 3.3 EM Energy Conversion 3
12:50 – 13:10 Room 1D	Closing Ceremony		
13:10 – 14:20	Lunch		

## Detailed Program

**Wednesday, June 24<sup>th</sup>**  
**Parallel Sessions A 11:20 – 12:50**

Session 1.1 – Power Quality 1	Room 1A
Chairman:	
<b>Modeling of DVR with Inverted Sine PWM Approach for Power Quality Problem</b> <i>Ilhami Colak, Subramani Chinnamuthu, Ramazan Bayindir, S.S. Dash, Paduchuri Chandra Babu</i>	
<b>Micro-Generation with Solar Energy: Power Quality and Impact on a Rural Low-Voltage Grid</b> <i>Rita Pinto, Maria do Rosário Calado, Sílvio Mariano, António Espírito Santo</i>	
<b>Modelling Harmonics Drawn by Nonlinear Loads</b> <i>Manuel Lamich, Josep Balcells, Juan Mon, Montserrat Corbalan, Eulalia Griful</i>	
<b>The comparative analysis of Parallel Active Power Filters - typical and voltage-based - in various operating conditions</b> <i>Piotr Grugel, Natalia Strzelecka</i>	
<b>A modeling scheme for the Le Blanc transformer</b> <i>João Martins, Carlos Martins, Vítor Pires</i>	
Session 1.2 – Power Electronics 1	Room 1B
Chairman:	
<b>Driving profile and fuel cell minimum power analysis impact over the size and cost of fuel cell based propulsion systems</b> <i>Carmen Raga, Andres Barrado, Antonio Lazaro, Isabel Quesada, Marina Sanz, Pablo Zumel</i>	
<b>Hybrid Energy Storage System With a Low Cost Digital Control</b> <i>Duarte Sousa, Dennis Carreira, Gil Marques</i>	
<b>Design and Evaluation of a Base Module of Active Power Electronic Transformer</b> <i>Indrek Roasto, Víctor Miñambres-Marcos, Enrique Romero-Cadaval, Ryszard Strzelecki</i>	
<b>Comparison of different RDC techniques</b> <i>Mitja Nemec, Vanja Ambrožič</i>	
<b>A resonant single-stage PFC AC-DC converter</b> <i>Jens Göttle, Thomas Dürbaum</i>	
Session 1.3 – EM Energy Conversion 1	Room 2A
Chairman:	
<b>A Robust Sensorless Sliding Mode Observer with Speed Estimate for the Flux Magnitude of the Induction Motor Drive</b> <i>Mihai Comanescu</i>	
<b>Voltage and Frequency Stabilization System with Self-Excited Induction Generator</b> <i>Andrzej Kasprówicz, Krzysztof Tomczuk</i>	
<b>Dynamic control system for electric motor drive testing on the test bench</b> <i>Anton Rassilkin, Toomas Vaimann, Ants Kallaste</i>	
<b>Speed and Rotor Position Estimation of the PMSM by SM Observers with Compound Manifolds and Linear Feedback</b> <i>Mihai Comanescu</i>	
<b>Analysis and design of a universal energy recovery converter for use with industrial inverters</b> <i>Ioannis Karatzaferis, Nick Papanikolaou, Emmanuel Tatakis</i>	

**Wednesday, June 24<sup>th</sup>**  
**Parallel Sessions B 15:00 – 16:40**

Session 1.4 – EM Energy Conversion 2	Room 1A
Chairman:	
<b>Flux Linkages in Squirrel-Cage Motor</b> <i>Klemen Drobnič, Henrik Lavrič, Vanja Ambrožič, Rastko Fiöer</i>	
<b>Novel Electronic Device to Improve the Performance of Variable-Torque Fixed-Speed Induction Motors</b> <i>Fernando J. T. E. Ferreira, José Guarino Simões, José Miguel Oliveira</i>	
<b>Efficient Testing of Electric Drive Components on a Test Bed With Energy Recuperation</b> <i>Henrik Lavric, Klemen Drobnic, Rastko Fiser</i>	
<b>Current Error Space Vector based Constant Switching Frequency Hysteresis Controller for VSI fed Induction Motor Drives</b> <i>Joseph Peter, Gil D Marques, Rijil Ramchand</i>	
<b>Indirect water cooling system improvements for vehicle motor applications</b> <i>Pia Lindh, Tuomo Lindh, Janne Heikkinen, Emil Kurvinen, Marco Satrustegui De Legarra, Miguel Martinez-Iturralde Maiza</i>	
Session 1.5 – Power Electronics for Power Systems 1	Room 1B
Chairman:	
<b>Three-Phase Power Flow Controller with AC/AC converter based on Matrix-Reactance Chopper</b> <i>Jacek Kaniewski, Pawel Szczesniak, Marcin Jarnut</i>	
<b>Matrix Converter as Unified Power Flow Controller: Design and Implementation of Decoupled Direct Power Controllers</b> <i>Joaquim Monteiro, J. Fernando Silva, Sónia Pinto</i>	
<b>Three-Phase Three-Level Neutral-Point-Clamped qZ Source Inverter with Active Filtering Capabilities</b> <i>Carlos Roncero-Clemente, Oleksandr Husev, Enrique Romero-Cadaval, João Martins, Dmitri Vinnikov, María Isabel Milanés-Montero</i>	
<b>Comprehensive Comparison of a Current-Source and a Voltage-Source Converter for Three-Phase EV Fast Battery Chargers</b> <i>Vitor Monteiro, J. G. Pinto, Bruno Exposto, João Afonso</i>	
<b>Participation of Multi-Terminal HVDC Grids in Frequency Regulation Services</b> <i>Carlos Moreira, José Gouveia, Bernardo Silva</i>	
Session 1.6 – SS Smart-Grid 1	Room 2A
Chairman:	
<b>Supraharmonics from Power Electronics Converters</b> <i>Sarah K. Rönnerberg, Aurora Gil-de Castro, Math H.J. Bollen, Antonio Moreno-Munoz, Enrique Romero-Cadaval</i>	
<b>Design and Implementation of a Microgeneration System Including Storage</b> <i>António Martins, Filipe Pereira, Vitor Sobrado, Adriano Carvalho, Abel Ferreira</i>	
<b>Non-Destructive Potential-Free Capacitive Tap for Low and Mid Voltage Smart Grid Communication</b> <i>Arne Neiser, Jan Fuhmann, Andreas Fink, Helmut Beikirch</i>	
<b>Single-Phase Power Electronics Transformer with Active Functions for Smart Grid</b> <i>Víctor Miñambres-Marcos, Indrek Roasto, Enrique Romero-Cadaval, Ryszard Strzelecki, Fermín Barrero-González</i>	
<b>Digitally Controlled 4-phase interleaved DC-DC Converter with Coupled Inductors for Storage Application in Microgrid</b> <i>Kaspars Kroics, Ugis Sirmelis, Linards Grigans, Viesturs Brazis</i>	

**Wednesday, June 24<sup>th</sup>**  
**Parallel Sessions C 17:00 – 18:40**

Session 1.7 – Power Quality 2	Room 1A
Chairman:	
<b>Simulation of OWES with Five-Level Converter Linked to the Grid: Harmonic Assessment</b> <i>Mafaldas Seixas, Rui Melicio, Victor Mendes, Carlos Couto</i>	
<b>Ancillary Services and Dynamic Behavior of Inverters connected to the Low Voltage Distribution Grid</b> <i>Markus Dietmannsberger, Detlef Schulz</i>	
<b>Carrier Based Modulation with Capacitor Balancing for Three-Level Neutral-Point-Clamped qZS Inverter</b> <i>Enrique Romero-Cadaval, Carlos Roncero-Clemente, Oleksandr Husev, Dmitri Vinnikov</i>	
<b>The Impact of Initial Phases of Higher Harmonics of the Supply Voltage of a Single-Phase Transformer on the Power Losses in its Core</b> <i>Sławomir Cieślak, Piotr Boniewicz</i>	
<b>Distributed Energy Resources and Environmental Optimization using a Memetic Algorithm</b> <i>António Vieira Pombo, João Murta-Pina, Victor Fernão Pires</i>	
Session 1.8 – Power Electronics 2	Room 1B
Chairman:	
<b>High Efficiency DC-DC Autotransformer Forward-Flyback Converter for DMPPT Architectures in Solar Plants</b> <i>David Lopez del Moral, Andres Barrado, Marina Sanz, Antonio Lazaro, Cristina Fernandez, Pablo Zumel</i>	
<b>A transformerless power electronic converter topology for PDLC applications</b> <i>Carlos Rosa, Fernando Monteiro, João Martins, João Sotomayor</i>	
<b>Hardware-in-the-Loop Simulator of Vessel Electric Propulsion Drive</b> <i>Valery Vodovozov, Zoja Raud, Ilja Bakman, Levon Gevorgov, Tonu Lehtla</i>	
<b>3-Terminal High Power Medium Voltage Grid Coupling Converter</b> <i>Marcin Parchomiuk, Krzysztof Zymmer, Zbigniew Zakrzewski, Maciej Grabarek</i>	
<b>Verification of Current Sensorless Control for Single-Phase NPC Multilevel Inverter</b> <i>Alexander Suzdalenko, Janis Zakis, Ingars Steiks, Yelena Chaiko</i>	

**Thursday, June 25<sup>th</sup>**  
**Parallel Sessions D 11:20 – 12:50**

Session 2.1 – Power Quality 3	Room 1A
Chairman:	
<b>A Novel Approach to Analyze the Harmonic Behavior of Customers at the Point of Common Coupling</b>	
<i>Kaveh Malekian</i>	
<b>Stable Operation of Grid-Interfacing Converter during the Operation of Active Power Filters in Power Grids</b>	
<i>Edris Pouresmaeil, M. Mehrasa, M.A. Shokridehaki, M. Shafie-khah, E.M.G. Rodrigues, J.P.S. Catalão</i>	
<b>A Generalized Predictive Control for T-type Power Inverters with output LC filter</b>	
<i>Sergio Vazquez, Charanraj Mohan, Leopoldo G. Franquelo, Abraham Marquez, Jose I. Leon</i>	
<b>Real-time implementation of the multi-swarm repetitive control algorithm</b>	
<i>Piotr Biernat, Bartłomiej Ufnalski, Lech Grzesiak</i>	
<b>Predictive Control of a Current-Source Inverter for Solar Photovoltaic Grid Interface</b>	
<i>Bruno Exposto, Rui Rodrigues, J.G. Pinto, Vítor Monteiro, João L. Afonso</i>	
Session 2.2 – Power Electronics 3	Room 1B
Chairman:	
<b>Experimental Verification of Light Electric Vehicle Charger Multiport Topology</b>	
<i>Tanel Jalakas, Janis Zakis</i>	
<b>Application of Wavelet Decomposition for Ship Power Surge Compensator</b>	
<i>Maciej Grabarek</i>	
<b>FPGA based Gate Signal Generator for Three-level Neutral Point Clamped Inverters</b>	
<i>Md Rishad Ahmed, Daniel J. Rogers</i>	
<b>Electromagnetic and Thermal Aspects of a Fast Field Cycling NMR Equipment - Magnet and Power Supply</b>	
<i>Duarte Sousa, Bruno Pereira, António Roque</i>	
<b>Isolated DC/DC Converter Based Voltage Measuring System for Series Connected Supercapacitor Cells</b>	
<i>Ugis Sirmelis, Linards Grigans, Kaspars Kroics, Janis Zakis</i>	
Session 2.3 – SS Smart-Grid 2	Room 2A
Chairman:	
<b>Overview of Plug-in Electric Vehicles as Providers of Ancillary Services</b>	
<i>Eva González-Romera, Fermín Barrero-González, Enrique Romero-Cadaval, María Isabel Milanés-Montero</i>	
<b>Smart Grid Security Issues</b>	
<i>Vasco Delgado-Gomes, João F. Martins, Celson Lima, Paul Nicolae Borza</i>	
<b>Analysis of Electromagnetic Disturbances in DC network of Grid Connected Building-Integrated Photovoltaic System</b>	
<i>Marcin Rucinski, Piotr Jerzy Chrzan, Jean-Luc Schanen, Antonie Labonne, Piotr Musznicki</i>	
<b>Towards a web-based energy consumption forecasting platform</b>	
<i>Miguel Taborda, João Almeida, José A. Oliveira-Lima, João F. Martins</i>	
<b>Probabilistic study of electrical networks with electrical vehicles and photovoltaics</b>	
<i>Francisco J Ruiz-Rodriguez, Francisco Jurado</i>	

**Thursday, June 25<sup>th</sup>**  
**Parallel Sessions E 14:00 – 15:50**

Session 2.4 – Power Quality 4	Room 1A
Chairman:	
<b>An Electric Vehicle Charging Station: Monitoring and Analysis of Power Quality</b> <i>Rita Pinto, José Pombo, Maria do Rosário Calado, Sílvio Mariano</i>	
<b>Novel Family of Modified qZS Buck-Boost Multilevel Inverters with Reduced Switch Count</b> <i>Oleksandr Husev, Ryszard Strzelecki, Frede Blaabjerg, Vasiliy Chopyk, Dmitri Vinnikov</i>	
<b>Analysis and Modeling of Time-Varying Harmonics in Frequency Domain</b> <i>Kaveh Malekian, Akif Gürlek, Wolfgang Schufft</i>	
<b>Grid interaction analysis of solar water heating photovoltaic-thermal (PV-T) systems with thermal storage tanks and electrical auxiliary heaters</b> <i>Pedro Magalhães, Rui Lopes, João Martins, António Joyce</i>	
<b>A Comprehensive Comparison of High Power IGBT-Based and Thyristor-Based AC to DC Converters in Medium Power DC Arc Furnace Plants</b> <i>Farshid Naseri, Haidar Samet</i>	
Session 2.5 – Power Electronics 4	Room 1B
Chairman:	
<b>Solutions of Inverter Systems In Shore-to-Ship Power Supply Systems</b> <i>Ryszard Strzelecki, Piotr Mysiak, Tomasz Sak</i>	
<b>Efficiency Control for Adjustment of Number of Working Pumps in Multi-pump System</b> <i>Ilja Bakman, Levon Gevorgov, Valery Vodovozov</i>	
<b>A Dual Inverter Topology Controlled by a Voltage Sliding Mode in Normal and Fault Operation</b> <i>Natália Santos, Vitor Pires, Fernando Silva</i>	
<b>Power Surge Compensator based on a Four Level Diode Clamped Inverter for Ship Application. Average Model.</b> <i>Ryszard Strzelecki, Maciej Grabarek, Marcin Parchomiuk</i>	
Session 2.6 – High Temperature Superconducting Technologies for Smart Grids	Room 2A
Chairman:	
<b>Stacks of coated conductors, the way for lightening of rotating machines (Extra Conference Presentation)</b> <i>Xavier Granados</i>	
<b>Study of an axial flux disc motor with superconductor rotor</b> <i>David Inácio, Anabela Pronto, Pedro Pereira, Mário Ventim Neves</i>	
<b>Analysing the Characteristics of Specific Torque in HTS Quasi-Diamagnetic Motor by Variation of Rotor Blade Geometry</b> <i>István Vajda, Sándor Semperger, Marcell Baranyai</i>	
<b>Integration of SMES devices in power systems - opportunities and challenges</b> <i>Nuno Amaro, João Murta-Pina, João Martins, José-Maria Ceballos</i>	
<b>Development of a Computational Tool for Simulating Inductive Superconducting Fault Current Limiters</b> <i>F. Ferreira, J. Murta-Pina, J. Martins</i>	

**Thursday, June 25<sup>th</sup>**  
**Parallel Sessions F 16:00 – 18:00**

Session 2.7 – Power Electronics for Power Systems 2	Room 1A
Chairman:	
<b>Evaluation of a PSO controller for DC-DC boost converters</b> <i>João Fermeiro, José Pombo, Maria do Rosário Calado, Sílvio JPS Mariano</i>	
<b>LQ current control for three-phase PWM rectifiers under unbalanced grid voltage conditions</b> <i>Andrzej Galecki, Arkadiusz Kaszewski, Bartłomiej Ufnalski, Lech M. Grzesiak</i>	
<b>A Control Strategy for a Grid-Connected PV System with Unbalanced Loads Compensation</b> <i>V Fernao Pires, O Husev, D Vinnikov, J Martins</i>	
<b>Improvement of the Synchronous Buck converter Dynamic Performance applied to Hybrid Electric Vehicle Regenerative Power Systems</b> <i>David Lopez del Moral, Andres Barrado, Marina Sanz, Pablo Zumel, Carmen Raga, Antonio Lazaro, Henry Miniguano</i>	
<b>A New Three-phase Voltage Sourced Converter Laplace Model</b> <i>Rui Brito, Adriano Carvalho, Manuel Gericota</i>	
Session 2.8 – SS Monitoring & Control of Electric Power Systems	Room 1B
Chairman:	
<b>Multivariable Generalized Predictive Control of a Synchronous Motor Drive used in an Electric Vehicle</b> <i>Aleksej Kiselev, Alexander Kuznietsov, Roberto Leidhold</i>	
<b>Integration of Evora-InovGrid Smartmeters in a Consumer's SCADA System</b> <i>Rita Pereira, João Figueiredo, João Martins, Rui Melicio, Victor Mendes, José Quadrado</i>	
<b>A Framework for the Analysis of Parabolic Trough Collectors Using 3D Data from Laser Scanners</b> <i>Santiago Salamanca, Pilar Merchán, Antonio Adán, Emiliano Pérez, Blanca Quintana</i>	
<b>Monitoring of Electric Power Systems: Application to self-sufficient Hybrid Renewable Energy Systems</b> <i>Isaías González, Antonio José Calderón, Manuel Calderón, José Luis Herrero</i>	
<b>Narrowband PLC Transmission Quality Versus Brightness Dimmable Lantern Impedance</b> <i>Piotr Kiedrowski</i>	



**Friday, June 26<sup>th</sup>**  
**Parallel Sessions G 11:20 – 12:50**

Session 3.1 – Power Quality 5	Room 1A
Chairman:	
<b>Power Quality Assessment in LV networks using new Smart Meters design</b> <i>João Martins, Mihai Sanduleac, Mihaela Albu, Dolores Alacreu, Carmen Stanescu</i>	
<b>Electro-mechanical set-up for automated calibration of current transducers</b> <i>Peter Zajec, Ales Leban</i>	
<b>Post-fault Operation of Multiphase Energy Generation System</b> <i>Michal Rolak, Mariusz Malinowski</i>	
<b>Voltage control in a DFIG-DC system connected to a stand-alone DC load</b> <i>Matteo F. Iacchetti, Gil D. Marques</i>	
<b>Economic limitations of the HVAC transmission system when applied to offshore wind farms</b> <i>João Machado, Mário Ventim Neves, Paulo Costa Santos</i>	
Session 3.2 – Power Electronics 5	Room 1B
Chairman:	
<b>Asymmetrical Quasi-Z-Source Half-Bridge DC-DC Converters</b> <i>Dmitri Vinnikov, Andrii Chub, Liisa Liivik</i>	
<b>Experimental Study of High Step-Up Quasi-Z-Source DC-DC Converter with Synchronous Rectification</b> <i>Liisa Liivik, Andrii Chub, Dmitri Vinnikov, Janis Zakis</i>	
<b>Contactless Power Supply with Resonant Inverter, Soft Switching Transistors and Unity Power Factor</b> <i>Jan Mucko</i>	
<b>Improved Operation of an UPQC by addition of a Superconducting Magnetic Energy Storage system</b> <i>Nuno Amaro, João Murta-Pina, João Martins, José-Maria Ceballos</i>	
<b>An Improved Space Vector PWM Method for a Three-Level Inverter with Reduced THD</b> <i>Pratheesh K J, Jagadanand G, Rijil Ramchand</i>	
Session 3.3 – EM Energy Conversion 3	Room 2A
Chairman:	
<b>Simple Digital Integration Algorithm with Saturation and Drift Elimination Based Second-Order Generalized Integrator</b> <i>Kamil Możdżyński</i>	
<b>Chattering Reduction Applied in PMSM Sensorless Control Using Second Order Sliding Mode Observer (SMSMO)</b> <i>Vasilios C. Ilioudis</i>	
<b>PSO based on-line optimization for DC motor speed control</b> <i>Luís Brito Palma, Fernando Vieira Coito, Bruno Gomes Ferreira, Paulo Sousa Gil</i>	
<b>Short flux-paths in switched reluctance generators for direct drive wind energy converters</b> <i>Pedro Lobato, Joaquim Dente, João Martins, Armando Pires</i>	
<b>Optimal Brake Specific Fuel Consumption Trajectory for Stand-Alone Variable Speed Diesel Gen-Set</b> <i>Ricardo Luís, José Carlos Quadrado, José Fernando Silva</i>	