

2018 IEEE 9th Power, Instrumentation and Measurement Meeting (EPIM 2018)

**Salto, Uruguay
14-16 November 2018**



**IEEE Catalog Number: CFP18EPI-POD
ISBN: 978-1-5386-7843-5**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18EPI-POD
ISBN (Print-On-Demand):	978-1-5386-7843-5
ISBN (Online):	978-1-5386-7842-8

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

THE ROLE OF BIOMASS IN URUGUAY'S ENERGY TRANSFORMATION	1
<i>I. Fígoli ; V. Perna ; G. Horta ; L. Perco ; Reyes A. ; W. Sierra</i>	
PROCESAMIENTO DE DATOS HISTÓRICOS PARA LA PROYECCIÓN DE DEMANDA ELÉCTRICA	7
<i>Pablo Pena ; Gonzalo Ermida ; Cedric Zoppolo</i>	
ENERGÍA SOLAR FOTOVOLTAICA EN LA ANTÁRTIDA.....	12
<i>Diego Orono ; Diego Giacosa ; Wilson Sierra</i>	
ESTUDIOS DE SOBRETENSIONES DE MANIOBRA DE LÍNEAS EN LA RED DE TRANSMISIÓN DE 150 KV Y 500 KV DE UTE	18
<i>Sofía Aparicio ; Andrea Pizzini ; Roberto Martinez ; Carlos Curbelo</i>	
INSULATION COORDINATION STUDY OF LIGHTNING OVERVOLTAGES FOR A 500 KV SUBSTATION	25
<i>Michel Artenstein ; Alejandro Segade ; Cedric Zoppolo ; Mariana D'Agosto</i>	
ASSESSMENT OF VOLTAGE SAGS VULNERABILITY AREA ACCORDING TO MAGNITUDE AND STANDARDIZED INDEXES	31
<i>Roger Oliveira ; Bibiana Petry Ferraz ; Ruth Agustini ; Renato Ferraz ; Roberto Chouhy Leborgne</i>	
OPTIMAL LOCATION OF DGS IN DC POWER GRIDS USING A MINLP MODEL IMPLEMENTED IN GAMS	36
<i>O. D. Montoya ; V. M. Garrido ; L. F. Grisales-Noreña ; W. Gil-González ; A. Garces ; C. A. Ramos-Paja</i>	
CONTRALOR Y GESTIÓN DE MODELOS ADECUADOS PARA TRANSITORIOS ELECTROMECÁNICOS Y ELECTROMAGNÉTICOS DE GRANJAS EÓLICAS Y PLANTAS FOTOVOLTAICAS	41
<i>G. Calzolari ; A. Segade ; O. Hevia ; C. Saldana ; O. Rodriguez</i>	
ANALYSIS AND EVALUATION OF GAP FILLING PROCEDURES FOR SOLAR RADIATION DATA.....	49
<i>Géssica M. S. Pereira ; Rafael L. B. Stonoga ; Daniel H. M. Detzel ; Kristie K. Küster ; Renato A. P. Neto ; Luís Alexandre Catussi Paschoalotto</i>	
CONTROL AND MODELING OF A CENTRIFUGAL PUMP USED AS A TURBINE IN AN ENERGY RECOVERY SYSTEM.....	55
<i>A Cadiboni ; F Yncio ; R Fernández ; G Ahrtz ; R Peña ; C Sosa Tellechea ; M Vásquez</i>	
A MODBUS CLIENT FOR THE IDENTIFICATION OF AN ENERGY RECOVERY SYSTEM FOR A WATER DISTRIBUTION NETWORK.....	61
<i>F. Yncio ; R. Peña ; A. Cadiboni ; R. Fernández ; G. Ahrtz ; C. Sosa Tellechea</i>	
ACCIONES REALIZADAS EN EQUIPOS CON DIAGNÓSTICO DE DESCARGAS PARCIALES. EXPERIENCIA DE SALTO GRANDE.	67
<i>Eduardo Brioso</i>	
VOLTAGE TRANSFORMER CALIBRATION SYSTEM BASED ON A DIGITAL CURRENT COMPARATOR.....	72
<i>Leonardo Trigo ; Marcelo Brehm ; Daniel Slomovitz</i>	
MEASUREMENT SYSTEM FOR ATOMIC CLOCK CALIBRATION	76
<i>Leonardo Trigo ; Daniel Slomovitz</i>	
BALANCE NETO EN URUGUAY Y OTROS PAÍSES DE AMÉRICA.....	80
<i>Tomas Di Lavello ; Diego Giacosa</i>	
INCORPORATION OF FORECASTS TO THE OPTIMAL OPERATION OF DYNAMIC SYSTEMS USING STOCHASTIC CEGH MODELS.	86
<i>Ximena Caporale ; Federico Barreto Galusso ; Ruben Chaer</i>	
PV AND ES SIZING ALGORITHM FOR THE CHILEAN DISTRIBUTION TARIFF SYSTEM.....	90
<i>Nelson Troncoso ; Luis Rojo-Gonzalez ; Oscar C. Vasquez ; Rodrigo Acuna ; Hector Chavez ; Manuel Villalobos-Cid</i>	
OPTIMAL SIZING OF DGS IN AC DISTRIBUTION NETWORKS VIA BLACK HOLE OPTIMIZATION	95
<i>O. D. Montoya ; V. M. Garrido ; L. F. Grisales-Noreña ; D. González-Montoya ; C. A. Ramos-Paja</i>	
AUTOMATED VOLTAGE REGULATION IN DISTRIBUTION GRIDS WITH DISTRIBUTED GENERATION	101
<i>Diego Acuña ; Lidia Davila ; Ramiro Escuder ; Carolina Etchart ; Juan Pablo García ; Andrès Martinez ; Marcelo Rey ; Julián Viera</i>	

ELECTRICAL POWER QUALITY ANALYSIS OF UNDER VOLTAGE LOAD SHEDDING WITH A BATTERY ENERGY STORAGE SYSTEM SUPPORT IN THE BRAZILIAN CONTEXT.....	107
<i>Géssica Michelle Dos Santos Pereira ; Alan Naoto Tabata ; Felipe José Lachovicz ; Carolina Corrêa Durce ; Romão Kowaltschuk</i>	
A NEW APPROACH FOR THE MONTE-CARLO METHOD TO LOCATE AND SIZE DGS IN DISTRIBUTION SYSTEMS	113
<i>L. F. Grisales-Noreña ; O. D. Montoya ; D. González-Montoya ; C. A. Ramos-Paja</i>	
AN EXACT FEEDBACK LINEARIZATION CONTROL OF A SMES SYSTEM TO SUPPORT POWER IN ELECTRICAL GRIDS.....	119
<i>O. D. Montoya ; V. M. Garrido ; W. Gil-González ; E. Holguín ; A. Garces</i>	
INTEGRATION OF PV ARRAYS IN DC POWER GRIDS VIA UNIDIRECTIONAL BOOST CONVERTERS: A PBC APPROACH	126
<i>O. D. Montoya ; J. E. Campillo ; W. Gil-González ; A. Garces</i>	
LINEAR-BASED NEWTON-RAPHSON APPROXIMATION FOR POWER FLOW SOLUTION IN DC POWER GRIDS	132
<i>O. D. Montoya ; W. Gil-González ; L. F. Grisales-Noreña</i>	
APPROACH TO DECENTRALIZED OPTIMAL ELECTRIC ENERGY DISPATCH FOR THE INTEGRATION OF SEVERAL COUNTRIES.....	138
<i>Guillermo Flieller ; Vanina Camacho ; Ignacio Reyes ; Ruben Chaer</i>	
GENETIC ALGORITHM APPLIED TO THE SPECIALIZATION OF NEURAL NETWORKS FOR THE FORECAST OF WIND AND SOLAR GENERATION	145
<i>D. Vallejo ; E. Cornalino ; R. Chaer</i>	
IMPACT OF THE UNCERTAINTY REPRESENTATION IN THE DETERMINATION OF EXPORTABLE ENERGY BLOCKS FOR OFFERS ONE WEEK IN ADVANCE.....	149
<i>María Cristina Álvarez ; Felipe Palacios ; Pablo Soubes ; Ruben Chaer</i>	
ANALYSIS OF THE PENETRATION POTENTIAL OF PV MICROGENERATION IN URUGUAY.....	155
<i>Florencia Bagnulo ; Isabel Briozzo ; Gonzalo Hermida ; Mario Vignolo ; Santiago Varela</i>	
REAL AND INDUCED CHARACTERISTICS IN THE SYSTEMIC ANALYSIS OF BEHAVIOR AND PRIMARY ENERGY CONTAINED IN WIND POWER SOURCE	161
<i>V. O. Da Silva ; M. E. M. Udaeta ; A L.. Gimenes ; L. C. R. Galvão</i>	
IMPACT OF THE NON-MANAGEABLE RENEWABLE GENERATION IN THE TECHNICAL AND ECONOMIC OPERATION OF A TRANSMISSION GRID. APPLICATION IN A SPECIFIC STUDY CASE.....	167
<i>Ulises Manassero ; Emmanuel Sangoi ; Carlos Ariel Lucero ; José Luis Torres ; Pablo Marelli ; Diego López</i>	
IMPACT OF A GRID-CONNECTED MARINE HYDROKINETIC FARM ON DISTRIBUTION SYSTEMS	173
<i>Jessica De Sousa Almeida ; Osvaldo R. Saavedra ; Denisson Q. Oliveira</i>	
DESIGN OF AN INTELLIGENT SENSOR NETWORK FOR DAM MONITORING BASED ON IOT TECHNOLOGY.....	179
<i>Luiz C. Magrini ; Paula S. D. Kayano ; Ferdinando Crispino ; Edvaldo F. Carneiro ; Tatiana P. A. Cappi ; Antonio L. C. Santos</i>	
DESARROLLO DEL AUTOCONSUMO DE CLIENTES REGULADOS EN URUGUAY	185
<i>M. Olave ; D. Giacosa ; L. Albornoz ; D. Vidal ; M. Scarone ; W. Sierra</i>	
ENERGY SURPLUSES AND RENEWABLE ENERGY BACKUP	192
<i>M. Scarone ; V. Echinope ; W. Sierra</i>	
DETECCIÓN DE FALLAS EN TRANSFORMADORES DE MEDIDA DE 150 KV	196
<i>Atilio Monticelli ; Roberto Martínez ; Carlos Chiarella</i>	
SEMI-AUTOMATIC TESTING SYSTEM FOR HIGH VOLTAGE DETECTORS.....	202
<i>Marcelo Brehm ; Leonardo Trigo ; Daniel Slomovitz</i>	
UTILIZACIÓN DE LA MEDIDA DIRECTA DE TEMPERATURA CON SENSORES DE FIBRA ÓPTICA EN UN TRANSFORMADOR PARA LA OPTIMIZACIÓN DEL MODELADO TÉRMICO, OPERACIÓN Y MANTENIMIENTO	205
<i>Diego Sattler ; Eduardo Briosso ; Marcos Schlegel</i>	
LOCALIZACIÓN DE DECARGAS PARCIALES EN TERMINALES DE CABLES POR ANÁLISIS DE FORMA DE ONDA.	210
<i>Pablo Antonio Stratta Angeloni ; Daniel Slomovitz</i>	
PRESERVING FAIRNESS IN EV CHARGING UNDER TIME-VARYING CONGESTION LEVELS	216
<i>Martin Zeballos ; Andres Ferragut ; Fernando Paganini</i>	
EVALUATION OF SIMULATION TOOLS FOR ENERGY STORAGE SYSTEM APPLICATION IN POWER SYSTEMS	221
<i>Thais M. Blasi ; João P. Fumagalli ; Géssica M. Dos S. Pereira ; Patrícia M. R. Da V. Damasceno</i>	

EVALUATION OF OVERVOLTAGE INVERSE TIME CHARACTERISTIC USE AT DISTRIBUTION SYSTEM PROTECTION AND ITS IMPACT ON VOLTAGE SAGS AND INTERRUPTIONS PERFORMANCE	227
<i>Lucas Araujo Da Costa ; Daniel Da Silva Gazzana ; Roberto Chouhy Leborgne</i>	
USE OF GRID CONNECTED INVERTERS IN REDUCTION OF ELECTRIC DEMAND PEAK IN RESIDENTIAL INSTALLATIONS	233
<i>Marco Fajardo ; Julio Viola ; José Manuel Aller ; Flavio Quizhpi</i>	
MEDICIÓN DE CAUDALES EN CANALES DE AFORO MEDIANTE SISTEMA TELEMÉTRICO	238
<i>Jonatan Piuma ; Pablo Rattin</i>	
INCIDENCIA DEL FACTOR DE CORRECCIÓN POR HUMEDAD RELATIVA SEGÚN ZONA GEOGRÁFICA EN ENSAYOS DE ALTA TENSIÓN	245
<i>Diego Silva</i>	
ESTRATEGIA PARA LA GESTIÓN DE UNA MICRO RED	250
<i>Cesar Francisco Bordon ; Leonardo Schenberger ; Franco Berterame ; Carlos Maria Chezzi ; Jose Jorge Penco</i>	
RISKS AND BENEFITS OF REDUCING THE TECHNICAL MINIMUM IN KAPLAN HYDROPOWER TURBINES TO INCREASE FREQUENCY CONTROL CAPABILITIES.....	256
<i>Ignacio Texeira</i>	
OUTDOOR SOLAR RADIOMETER CALIBRATION UNDER ISO-9847:1992 STANDARD AND ALTERNATIVE METHODS.....	260
<i>Gonzalo Abal ; Andrés Monetta ; Rodrigo Alonso-Suárez</i>	
TOWARDS MULTI-TIMESCALE ENERGY PROVISIONING USING STOCHASTIC DUAL DYNAMIC PROGRAMMING	266
<i>Rodrigo Porteiro ; Andres Ferragut ; Fernando Paganini</i>	
STATISTICAL METHODOLOGY TO CLASSIFY AND PRIORITIZE SUPERSEDED CURRENT TRANSFORMERS REPLACEMENTS	272
<i>Eduardo Bortolin Argenton ; Roberto Arnt Tarrago ; Roberto Chouhy Leborgne</i>	
DYNAMIC RESPONSE OF POWER TRANSFORMER TANKS.....	277
<i>C. P. Coutinho ; C. Novais ; S. M. O. Tavares ; M. Pinto ; A. Vieira ; C. C. Linhares ; H. Mendes ; R. Castro Lopes</i>	
MODELAGEM ELETROMAGNÉTICA E CÁLCULO DO HOT-SPOT EM REATORES DO TIPO SHUNT ATRAVÉS DO MÉTODO DE ELEMENTOS FINITOS EM 2-D	283
<i>Anderson S. Nunes ; Alvaro Portillo ; Federico Portillo</i>	
Author Index	