

2nd Pan American Health Care Exchanges Conference 2007

(PAHCE 2007)

**Long Beach, California, USA
12-16 February 2007**

Editors:

Lorenzo Leija

Christopher Druzgalski

ISBN: 978-1-61782-181-3

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2007) by Pan American Health Care Exchanges
All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact Pan American Health Care Exchanges
at the address below.

Pan American Health Care Exchanges
11278 Los Alamitos Blvd. #123
Los Alamitos CA 90720

Fax: (646) 514-4569

pahceadm@acsu.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

FORMAT A

051e: Integrated Hospital Information Infrastructure for Multi-unit Healthcare Services	1
<i>Sun K. Yoo, B. C. Chang</i>	
052e: Design of an Electroencephalogram Module for Brain Computer Interface Oriented to People with Motor Disabilities	2
<i>P. Tupayachi, José Piñeyro, Rocío Callupe, R. Alvarado</i>	
053s: Propuesta De Diseño De Una Unidad De Quemados (Proposal of a Design of a BurnsUnit)	3
<i>R. S. Tavera Hurtado, M. T. García González, C. P. Quiroz Flores</i>	
054e: Cellular-Phone Based Dental Image Viewer over 3G Network for Emergency Dental Service.....	4
<i>Kee-Deog Kim, Ho Gul Jeong, Sun K. Yoo, J. J. Kim, D. K. Kim</i>	
055e: Assessment of Wound Healing Using Frequency Response	5
<i>J. E. Cabalona, J. D. B. Llagas, C. M. K. Lee</i>	
056e: Color-Correction of Digital Images for Telemedicine	6
<i>January N. Guerrero, Christine D. Lleva, Ma. Rhodessa Angelica D. Mapa, Maria Leonora C. Guico, Gregory L. Tangonan</i>	
057e: Analysis of Color-Based Assays for Urinalysis.....	7
<i>Richelle K. Arjona, Sarah L. Bragais, C. M. K. Lee</i>	
058e: Dynamic Personal Medical Database.....	8
<i>Benjamin Rafael F. Intal, Alfonzo Miguel N. Sabado, Maria Leonora C. Guico, Gregory L. Tangonan</i>	
059s-162s: Guía De Evaluación Para Auditar Departamentos De Ingeniería Biomédica Hospitalarios (Evaluation Guide to Audit Biomedical Engineering Departments)	9
<i>R. J. Vidal, L. M. A. Bautista</i>	
060e: New Assay Formats for Drug Discovery	10
<i>Brian Rasnow</i>	
061e: Environmental Health in the Mexicali – Imperial County Basin: A Niche of Opportunities for Biomedical Engineering	11
<i>M. A. Reyna, H. G. Arriola, M. E. Bravo</i>	
062s: Sistema de Transmisión y Recepción de Señales Biológicas Vía Radiofrecuencia (Transmission and Reception System for Biological Signals Using Radiofrequency)	12
<i>Agustín Márquez Espinoza, Carlos Alvarado Serrano, Ismael H. Landeros Guzmán, Gabriel Vega Martínez</i>	
063e: Lossless Compression of Pre-Scan-Converted Doppler Echocardiographic Images Using Integer Wavelet Transform.....	13
<i>Xiyi Hang</i>	
064s-166e: Estimación De La Temperatura En Phantoms E Hígado Empleando Señales Ultrasónicas Y La Transformada De Hilbert (Temperature Estimation Inside Phantoms and Liver by Using Ultrasonic Signals and Hilbert Transform)	14
<i>A. Vera, L. Leija, M. A. Rodríguez, A. Ramos</i>	
065s-155e: Tridimensional Thermal Beam-Shape for Ultrasound Therapy Transducers	15
<i>W. Gómez, L. Leija, W. C. A. Pereira, A. Vera</i>	
066e-156e: Estimación De Las Distancias De Separación Entre Dos Scatterers (Glass Beads) Dentro De Un Phantom Ultrasónico (Distance Estimation Between Two Glass Beads Scatters Inside of an Ultrasonic Phantom).....	16
<i>R. A. Salido-Ruiz, M. Vázquez, L. Leija, A. Vera</i>	
067s-153e: Estimación De Temperatura a Diferentes Profundidades	17
<i>M. Vázquez, A. Ramos, J. L. Reyna, A. Vera, L. Leija</i>	
068e-154e: Image Reconstruction Using the Synthetic Aperture Focusing Technique.....	18
<i>M. A. Díaz, L. Leija, A. Vera</i>	
069s-152e: Análisis Espectral Aplicado a Una Señal Simulada De Ecos Ultrasonicos Para Aplicación En La Medición No Invasiva De Temperatura Por Medio De Ultrasonidos (Spectral Analysis Applied to a Ultrasonic Simulated Signal for Non-invasive Temperature Measurement with Ultrasound)	19
<i>I. Bazán, A. Ramos, L. Leija, A. Vera</i>	
070e-151s: Assisting System for Electrophysiological Signals Analysis	20
<i>M. A. Reyna, A. E. Carranza, L. A. Castro, O. E. Montaño, H. G. Arriola, M. E. Bravo</i>	

071s: La Ingeniería De Sistemas Aplicada a La Informática Médica (The Systems Engineering Applied to Medical Computer Science)	21
<i>H. G. Arriola, M. A. Reyna, M. E. Bravo</i>	
074s: Aplicaciones Clínicas De Las Cerámicas Piezoelectricas Y Su Tendencia En El Mercado Mundial (Clinical Applications of Piezoelectric Ceramics and Its Mundial Market Tendency)	22
<i>E. Suaste Gómez, Carlos O. González Morán, Andrés Hernández Pineda</i>	
075s: Diseño de un C. I. Generador Programable de Señales Agonista y Antagonista para su uso en un Electroestimulador de Músculos Extraoculares (Marcapaso Ocular) (Design of a Programmable Agonist and Antagonist Signals Generator I.C. to Use in a Extraocular Muscle Electrostimulator (Ocular Markpass))	23
<i>David A. Gutiérrez Begovich, E. Suaste Gómez</i>	
076s: Elaboración de Cerámicas Piezoelectricas ($\text{Bi}_{1/2}\text{Na}_{1/2}$)$\text{BaTiO}_3$ Libres de Plomo para Aplicaciones Clínicas (Development of Lead-Free ($\text{Bi}_{1/2}\text{Na}_{1/2}$)$\text{BaTiO}_3$ Piezoelectric Ceramics for Clinical Applications)	24
<i>R. Rodríguez Ruiz, A. Flores Cuautle, E. Suaste Gómez</i>	
077s: Videoculografía De Alta Velocidad Para Determinar La Dinámica Pupilar (High Velocity Videoculography to Determine the Pupil Dynamics)	25
<i>Luis Villamar, E. Suaste Gómez</i>	
078s: Registro De Respuestas Pupilares Evocadas Acústicamente Con Videoculografía De Alta Velocidad (High Velocity Videoculography to Record Evoked Pupillary Responses by Auditive Stimulation)	26
<i>Eduardo Martínez, Luis Villamar, E. Suaste Gómez</i>	
079e: Objective Detection of the Color Visual Perception and Its Clinical Importance (Detección Objetiva De La Percepción Visual a Los Colores Y Su Importancia Clínica)	27
<i>Dolores Rodríguez Guzmán, E. Suaste Gómez</i>	
080s: Respuestas Pupilares Y Potenciales Evocados Visuales Para La Detección Objetiva De Campos Visuales (Pupillary Responses and Visual Evoked Potential to Detect Objective Visual Fields)	28
<i>J. A. Valdez Hernández, E. Suaste Gómez</i>	
081s: Piezo-Polímero PVDF como Sensor de Fuerza para Análisis Biomecánico de Roedores (PVDF Piezo Film Strength Sensor for Biomechanical Analysis in Mice)	29
<i>Germán Escoto Mora, Carlos O. González Morán, E. Suaste Gómez</i>	
082e: Design of a Phototherapy Equipment Using LEDs Applied to Ulcers	30
<i>Jesús Zegarra Flores, Ana Cecilia Moreno Álamo, Rocío Callupe, José Piñeyro</i>	
083s: Sistema Multicanal Para La Identificación De 9 Movimientos De La Extremidad Superior	31
<i>M. León, L. Leija, R. Muñoz</i>	
084s: Lengua Electrónica Voltamperométrica Basada En Una Red Neuronal Wavelet Para La Determinación De Compuestos Oxidables Usados En La Industria Farmacéutica	32
<i>J. M. Gutiérrez, L. Leija, P. R. Hernández, R. Muñoz, R. Cartas, A. Gutés, F. Céspedes, S. Alegret, M. Del Valle</i>	
085e/s: Prototype of an Electronic Module to the Acquisition of Data Temperature of the Newborn Skin (Prototipo De Un Módulo Electrónico Para La Adquisición De Datos De Temperatura De La Piel Neonatal)	33
<i>Ana Cecilia Moreno Álamo, Jesús Zegarra Flores, Rocío Callupe, José Piñeyro</i>	
086e: Evaluation and Comparison of Pressure Parameters of Lung Ventilators Using a Tester and Communicating Vessel Method	35
<i>Nilia Abad, Jorge Castañeda, José Piñeyro, L. Vilcahuamán, R. Rivas</i>	
087e: Low Cost Gait Analysis System with Active Markers	36
<i>R. Ayala, L. Jiménez, M. Muñoz, G. Suárez, L. Vilcahuamán, R. Rivas</i>	
088e: Academic/Industrial Programs and Linkages: « Health Technology Management Development using the Education-Research-Industry Cluster »	37
<i>R. Rivas, L. Vilcahuamán</i>	
089e: An Evaluation of a New Combined SpO_2 and PtcCO_2 Monitor (TOSCA) During Anesthesia	38
<i>N. Shah, S. Vakharia, L. Estanol, H. Kim</i>	
091e: Simplified ECG Waveform Analysis Utilizing MATLAB Based Artificial Neural Network Tools	39
<i>Ali Sleiman, Christopher Druzgalski</i>	
092e: Correlation of Pulmonary Acoustics and Flow/Volume Loops Indicators	40
<i>Saravana Raman, Christopher Druzgalski</i>	
093e: Improvement of Diagnostic of Accuracy of ECG Stress Testing in Obese Patients	41
<i>S. M. Lobodzinski, M. M. Laks</i>	
095e: Markerless Video Arm Tracking as a Tool for Biomechanics/Rehabilitation Engineering	42
<i>L. E. Sucar, G. Azcarate, R. Leder, D. Reinkensmeyer</i>	
096e: Design of a Prototype Based on Negative Pressure System for Pressure Ulcers Treatment	43
<i>Paulo Huapaya, José Piñeyro, R. Alvarado, Rocío Callupe</i>	

097e-165e: Mobile Sleep Diagnostic Devices for Testing Around the World.....	44
<i>Robert N. Schmidt</i>	
098e-164e: New Laboratories for an Electrophysiology Lab Course in English and Spanish.....	45
<i>Robert N. Schmidt</i>	
099e: Assessment of Pain in Patients with Carpal Tunnel Syndrome	46
<i>Zbigniew Dunajski, Tadeusz Palko</i>	
100e/s: Health Status Differences Among Countries in the Western Hemisphere According to Income Level (Diferencias En Condiciones De Salud Entre Países En El Hemisferio Occidental Según Su Nivel De Ingresos).....	47
<i>Mercedes Guilliam, Gina Piane</i>	
101e: Disaster Health Care: Linking Mitigation and Preparedness with Technology	49
<i>Kathy Crow</i>	
102e -163e: Mitigation of the Spread of Infections Through Use of Washable Computer Keyboards, Mice and Smart Card Readers	50
<i>Joseph H. Carabello</i>	
103s: Problemas En La Atención Médica En Baja California	51
<i>Moisés Rodríguez, M. A. Reyna</i>	
104e: 2-D Arrays for 3-D Imaging of Near-Field Targets	52
<i>Jesse T. Yen</i>	

FORMAT B

151s- 070e: Sistema Para El Auxilio En El Análisis De Señales Electrofisiológicas (Assisting System for Electrophysiological Signals Analysis).....	53
<i>M. A. Reyna, O. E. Montaño, A. E. Carranza, L. A. Castro, H. G. Arriola, O. López</i>	
152e – 069s: Spectral Analysis Applied to an Ultrasonic Simulated Signal for Non-Invasive Temperature Measurement with Ultrasound.....	56
<i>I. Bazán, A. Vera, A. Ramos, L. Leija</i>	
153e – 067s: Echo-Graphic Estimation of Temperatures at Three Different Depths in a Phantom.....	62
<i>M. Vázquez, A. Ramos, J. L. Reyna, A. Vera, L. Leija</i>	
154e – 068s: Image Reconstruction Using the Synthetic Aperture Focusing Technique	67
<i>M. A. Díaz, L. Leija, A. Vera</i>	
155 -065s: Tridimensional Thermal Beam-Shape for Ultrasound Therapy Transducers	71
<i>W. Gómez, L. Leija, W. C. A. Pereira, A. Vera</i>	
156e-066s: Distance Estimation Between Two Glass Beads Scatters Inside of an Ultrasonic Phantom	75
<i>R. A. Salido-Ruiz, M. Vázquez, L. Leija, A. Vera</i>	
157e-000: Medical Equipment Technology and Clinical Engineering: On-line Course.....	80
<i>Juan Valenci, Jose Maya, R. Rivas, L. Vilcahuamán, J. Tobey Clark</i>	
158s-000: Mantenimiento, Desarrollo Y Evolución De Un Software De Procesamiento De Imágenes Médicas Para Apoyo Al Aprendizaje: M-Ofthos (Maintenance, Development and Evolution of a Medical Imaging Software for Learning Support: M-Ofthos).....	82
<i>Gilberto Velázquez Hernández, Virgilio De La Cruz Jardón, Juan Alberto Muñoz Vela, Heidi Velázquez Hernández</i>	
159e-000: Data Acquisition Via LAN for Phantom Permittivity Measurement Using Agilent 4294A Precision Impedance Analyzer	86
<i>R. Avitia, G. Claudot, A. Vera, L. Leija</i>	
160e-000: Electromagnetic Radiation Equipment Monitoring in Phantom Testing Temperature Increments.....	90
<i>R. Avitia, A. Vera, L. Leija</i>	
161e-000: Survey of Clinical Engineering and Model for Technology Acquisition and Diffusion in Developing Countries	94
<i>Monique Frize, Xinyuan Cao, Isabelle Roy, Shauna Mullally</i>	
162s-059s: Guía De Evaluación Para Auditar Departamentos De Ingeniería Biomédica Hospitalarios (Evaluation Guide to Audit Biomedical Engineering Departments).....	99
<i>R. J. Vidal, L. M. A. Bautista</i>	
163e-102e: Mitigation of the Spread of Infections Through Use of Washable Computer Keyboards, Mice and Smart Card Readers	104
<i>Joseph H. Carabello</i>	
164e-098e: New Laboratories for an Electrophysiology Lab Course in English and Spanish.....	108
<i>Robert N. Schmidt</i>	
165e-097e: Mobile Sleep Diagnostic Devices for Testing Around the World.....	113
<i>Robert N. Schmidt</i>	

166e-064s: Temperature Estimation Inside Phantoms and Liver by Using Ultrasonic Signals and Hilbert Transform	119
<i>A. Vera, L. Leija, M. A. Rodríguez, A. Ramos</i>	
Author Index	