



**TEXAS  
DIFFERENTIAL  
EQUATIONS  
CONFERENCE**

**MARCH 24 - 25, 2018**

**SCHEDULE**

# SATURDAY MARCH 24, LA VILLITA

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8:35 - 9:00 AM

WELCOME AND OPENING

## CHAIR: CHANGFENG GUI

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9:00 - 9:20 AM

*Philip Isett, The University of Texas at Austin*  
A PROOF OF ONSAGER'S CONJECTURE

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9:25 - 9:45AM

*George Livadiotis, Southwest Research Institute*  
DERIVATION OF THE GENERAL ENTROPIC  
FUNCTION

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9:50 - 10:10 AM

*Timothy Huber, The University of Texas at Rio Grande Valley*  
OPTIMIZATION OF DIFFERENTIAL EQUATIONS  
FOR MOONSHINE FUNCTIONS

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10:15 - 10:35 AM

*Dambaru Bhatta, The University of Texas at Rio Grande Valley*  
CONVECTIVE FLOW IN A POROUS MEDIUM  
WITH LINEAR VERTICAL VARIATION  
IN RESISTIVITY

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10:40 - 11:00 AM

COFFEE BREAK IN THE RIVERWALK ROOM

## CHAIR: ZHIJUN QIAO

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11:00 - 11:20 AM

*Fengxin Chen, The University of Texas at San Antonio*  
MULTIDIMENSIONAL STABILITY OF PLANAR  
TRAVELING WAVES FOR NONLOCAL ALLEN-  
CAHN EQUATION

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11:25 - 11:45 AM

*Mostafa Fazly, The University of Texas at San Antonio*  
ON DE GIORGI'S CONJECTURE IN LOWER  
DIMENSIONS

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11:50 AM - 12:10 PM

*Karen Yagdjian, The University of Texas at Rio Grande Valley*  
A NEW INTEGRAL TRANSFORM APPROACH  
TO SOLVING HYPERBOLIC EQUATIONS IN THE  
CURVED SPACE-TIMES

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12:10 - 1:40 PM

BUFFET LUNCH IN THE RIVERWALK ROOM,  
GROUP PHOTO

**CHAIR: FENGXIN CHEN**

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9:25 - 9:45AM      *Zhaosheng Feng, The University of Texas at Rio Grande Valley*  
IMPLICIT SOLUTIONS TO THE KDV-BURGERS-  
KURAMATO EQUATION

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9:50- 10:10 AM      *Kun Gou, Texas A&M University at San Antonio*  
MODELING OF THE TRACHEA OPENING SIZE  
CHANGE UNDER ANGIOEDEMA

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10:15 - 10:35 AM      *D. Palaniappan, Texas A&M University at Corpus Christi*  
VELOCITY-DECOMPOSITION APPROACH  
FOR OSCILLATORY STOKES AND BRINKMAN  
EQUATIONS

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10:40 - 11:00 AM      COFFEE BREAK IN THE RIVERWALK ROOM

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**CHAIR: ZHAOSHENG FENG**

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11:00 - 11:20 AM      *Yuri Yatsenko, Houston Baptist University*  
OPTIMAL STOPPING PROBLEM IN ASSET  
REPLACEMENT UNDER IMPROVING  
TECHNOLOGY

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11:25 - 11:45 AM      *Erwin Suazo, The University of Texas at Rio Grande Valley*  
RICCATI-ERMAKOV SYSTEMS AND EXPLICIT  
SOLUTIONS FOR VARIABLE COEFFICIENT  
REACTION-DIFFUSION EQUATIONS

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11:50 AM - 12:10 PM      *Youn-Sha Chan, The University of Houston Downtown*  
FRACTURE MECHANICS IN DIFFERENT  
ELASTICITY THEORIES AND A HIERARCHY OF  
PDES

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12:10 - 1:40 PM      BUFFET LUNCH IN THE RIVERWALK ROOM,  
GROUP PHOTO

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## SATURDAY MARCH 24, LA VILLITA

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### CHAIR: GILES AUCHMUTY

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1:40 - 2:00 PM

*Zhijun Qiao, The University of Texas at Rio Grande Valley*  
HIGHER ORDER CH MODEL

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2:05 - 2:25 PM

*Baofeng Feng, The University of Texas at Rio Grande Valley*  
BILINEARIZATION AND REDUCTIONS FOR  
THE NLS, DERIVATIVE NLS, COMPLEX SINE-  
GORDON AND FOKAS-LENELLS EQUATIONS

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2:30 - 2:50 PM

*Chunmei Wang, Texas State University*  
PRIMAL-DUAL WEAK GALERKIN FINITE  
ELEMENT METHODS

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2:55 - 3:15 PM

*Stephen Salako, Our Lady of the Lake University*  
OPTIMAL CONTROL APPROACH TO IMAGE  
REGISTRATION

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3:20 - 3:40 PM

COFFEE BREAK IN THE RIVERWALK ROOM

### CHAIR: GEORGE LIVADIOTIS

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3:40 - 4:00 PM

*Pablo Raul Stinga, Iowa State University*  
HOW TO APPROXIMATE THE FRACTIONAL  
LAPLACIAN BY THE FRACTIONAL DISCRETE  
LAPLACIAN

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4:05 - 4:25 PM

*Animesh Biswas, Iowa State University*  
EXTENSION PROBLEM AND HARNASK  
INEQUALITIES FOR MASTER EQUATIONS

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4:30 - 4:50 PM

*Md Al Masum Bhuiyan, The University of Texas at El Paso*  
APPLICATION OF STOCHASTIC DIFFERENTIAL  
EQUATION BY USING ORNSTEIN UHLENBECK  
PROCESS

## SATURDAY MARCH 24, EL PASEO

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### CHAIR: BAOFENG FENG

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1:40 - 2:00 PM

*Saber Elaydi, Trinity University*

NONSTANDARD DISCRETIZATION METHODS  
OF DIFFERENTIAL EQUATIONS

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2:05 - 2:25 PM

*Nathalie Luna, The University of Texas at Rio Grande Valley*

THE BLOW-UP SOLUTIONS OF WAVE MAP  
EQUATION WITH PERIODIC IN TIME SPEED OF  
PROPAGATION

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2:30 - 2:50 PM

*Neil Jerome Egarguin, The University of Houston*

LOCATING DEFECTS IN A VIBRATING STRING  
USING EIGENFUNCTION EXPANSION AND THE  
METHOD OF MOMENTS

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2:55 - 3:15 PM

*Shuxia Li, The University of Texas at Rio Grande Valley*

LAX REPRESENTATION FOR AN INTEGRABLE  
HIERARCHY

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3:20 - 3:40 PM

COFFEE BREAK IN THE RIVERWALK ROOM

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### CHAIR: AKIF IBRAGIMOV

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3:40 - 4:00 PM

*Md Raful Islam, Texas Tech University*

EPIDEMIC MODELING AND IDENTIFYING  
DOMINANT TRANSMISSION PATHWAYS

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4:05 - 4:25 PM

*Guanting Liu, Inner Mongolia Normal University*

INTERACTION AMONG INFINITE NUMBER  
DISLOCATIONS AND A SEMI-INFINITE CRACK IN  
ONE DIMENSIONAL HEXAGONAL PIEZOELECTRIC  
QUASICRYSTALS

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4:30 - 4:50 PM

*Ze Cheng, The University of Texas at San Antonio*

EXISTENCE OF SOLUTIONS TO THE SUPER-  
CRITICAL HARDY-LITTLEWOOD-SOBOLEV  
SYSTEMS

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# SUNDAY MARCH 25, LA VILLITA

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## CHAIR: DUNG LE

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9:00 - 9:20 AM *Andras Balogh, The University of Texas at Rio Grande Valley*  
NEW CONJECTURES FOR THE HIGGS BOSON  
EQUATION IN THE DE SITTER SPACETIME

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9:25 - 9:45 AM *Diane Denny, Texas A&M University at Corpus Christi*  
EXISTENCE OF A UNIQUE CLASSICAL  
SOLUTION TO A QUASILINEAR ELLIPTIC  
EQUATION

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9:50 - 10:10 AM *Akif Ibragimov, Texas Tech University*  
MIXED BOUNDARY VALUE PROBLEMS FOR  
NON-DIVERGENCE TYPE ELLIPTIC EQUATIONS  
IN UNBOUNDED DOMAIN

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10:15 - 10:35 AM *Vesselin Vatchev, The University of Texas at Rio Grande Valley*  
AN APPROXIMATION OF THE N-SOLITON  
SOLUTION OF KDV

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10:40 - 11:00 AM COFFEE BREAK IN THE RIVERWALK ROOM

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## CHAIR: DIANE DENNY

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11:00 - 11:20 AM *Anahit Galstyan, The University of Texas at Rio Grande Valley*  
FINITE LIFESPAN OF SOLUTIONS OF THE  
SEMILINEAR WAVE EQUATION IN THE EINSTEIN-  
DE SITTER SPACETIME

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11:25 - 11:45 AM *Vu Hoang, The University of Texas at San Antonio*  
QUANTITATIVE BOUNDS VERSUS  
WEAKLY COUPLED STATES FOR SOME  
PSEUDORELATIVISTIC OPERATORS

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11:50 AM - 12:10 PM *Dan Wu, Hunan University*  
ON GLOBAL EXISTENCE FOR MASS-SUPER-  
CRITICAL NONLINEAR FRACTIONAL HARTREE  
EQUATIONS

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# SUNDAY MARCH 25, EL PASEO

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## CHAIR: VU HOANG

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9:00 - 9:20 AM

*Taufik Meklachi, Penn State Harrisburg*

RESONANCES OF SMALL VOLUME HIGH CONTRAST LINEAR AND NONLINEAR SCATTERERS: ASYMPTOTIC METHODS

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9:25 - 9:45 AM

*Juan Lopez, The University of Houston*

WELL-POSEDNESS FOR AN AXISYMMETRIC DIV-CURL SYSTEM

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9:50 - 10:10 AM

*Du Pham, The University of Texas at San Antonio*

EXISTENCE AND UNIQUENESS FOR WEAK SOLUTIONS OF STRONG CROSS DIFFUSION SYSTEMS

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10:15 - 10:35 AM

*Yeyao Hu, The University of Texas at San Antonio*

BLOW-UP SOLUTIONS FOR A MEAN FIELD EQUATION ON SPHERE AND TORUS

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10:40 - 11:00 AM

COFFEE BREAK IN THE RIVERWALK ROOM

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## CHAIR: MOSTAFA FAZLY

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11:00 - 11:20 AM

*Eric Platt, The University of Houston*

ACTIVE CONTROL OF FIELDS SATISFYING THE HELMHOLTZ EQUATION

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11:25 - 11:45 AM

*Widodo Samyono, Jarvis Christian College*

NUMERICAL OPTIMIZATION PROBLEMS IN NUCLEAR REACTOR DESIGN

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11:50 AM - 12:10 PM

*Fangfang Liao, Xiangnan University*

THE EXISTENCE OF NONTRIVIAL SOLUTIONS FOR SEVERAL KINDS OF ELLIPTIC SYSTEMS ON  $R^n$

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