

# **Brownsville Seminar**

**UTRGV**<sup>TM</sup>

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School of Mathematical  
& Statistical Sciences

## **On Solving Nonlinear PDEs in a Class of Rational Exponential Functions**

**Speaker: Dr. Vesselin Vatchev**

### **Abstract:**

There are no standard techniques to solve general nonlinear PDEs. Some of the classical approaches for certain types of PDEs are to look for special type solutions (traveling waves), or special features of the PDE (symmetries), or 'linearize' the equation (Lax pairs). In the talk we discuss particular solutions of nonlinear PDEs related to the Euler Equations in one spatial variable. These solutions can be related to the Hirota or tangent hyperbolic methods.

We also introduce a large class of rational exponential functions (REF) in one spatial variable and discuss their properties. A method for finding solutions of certain PDEs with a polynomial type of nonlinearity is proposed in the class of REF.

**Light refreshments will be provided**

**Friday, March 24, 2023**

**Event Location: BLHSB 1.312**

**Time: 3:30-4:30 pm**

For further information or for special accommodations, please contact Dr. Alexey Glazyrin via email [alexey.glazyrin@utrgv.edu](mailto:alexey.glazyrin@utrgv.edu).