

# *Math Colloquium*

*University of Texas at Arlington - Department of Mathematics  
Proudly Presents:*

*Taufiquar Khan, PhD.*

*University of North Carolina at Charlotte*

Friday, September 27<sup>th</sup>, 2024  
2:00 pm – 4:00 pm  
PKH 311

## “Bayesian Inversion Using Level Sets in Diffuse Optical Tomography”

### Abstract:

In this talk, we will provide an overview of the ill-posed inverse problem in Diffuse Optical Tomography (DOT) at an introductory level. We will discuss several regularization approaches to solve the ill-posed inverse problem in DOT including deterministic, statistical, and machine learning. Then we will present our most recent work using Bayesian Inversion Using level sets for image reconstruction in DOT. The results of image reconstruction will be demonstrated using synthetic data for the recently proposed algorithm. This is joint work with Anuj Abhishek (Case Western Reserve University) and Thilo Strauss (Xi'an Jiaotong-Liverpool University).

*Refreshments before the talk and socializing following the talk*  
<http://www.uta.edu/math/seminars>