

# *Colloquium*

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

*Dr. Paul Yingwei Peng*

*Queen's University*

Friday, October 22, 2021  
3:00pm – 4:00pm

**<https://tinyurl.com/paul-y-peng>**

*“Maximum likelihood estimation for length-biased and interval-censored data with a cure fraction”*

**Abstract:** Length-biased data, a special case of left-truncated data, assume that the incidence of the initial event follows a homogeneous Poisson process. I will introduce length-biased and interval-censored data with a cure fraction arising from an early-onset diabetes mellitus study and a new method to analyze such data in this talk. The Cox proportional hazards model for the survival time of the susceptible individuals and the logistic regression model for the probability of being susceptible are employed to model the data. We construct the full likelihood function and obtain the nonparametric maximum likelihood estimates of the regression parameters by employing the EM algorithm. The large sample properties of the estimates are established. The performance of the method is assessed by simulations. The proposed model and method are applied to the data from the early-onset diabetes mellitus study. This is collaborative work with Chyong-Mei Chen, Hsin-Jen Chen, and Pao-Sheng Shen.

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