# Many questions and few answers on exponential bases

**Laura De Carli**

Florida International University, United States

decarlil@fiu.edu

An exponential basis on a domain $D \in R^d$ is a Riesz basis of $L^2(D)$ made of exponential functions with linear exponents. Exponential bases are very useful in the applications but they are difficult to come by. Only a few domains of $R^d$ are known to have exponential bases, and there is no example of a domain on which exponential bases are known not to exist. In this talk I will present a number of problems on exponential bases. In particular, I will discuss the following problem: let $D$ be a domain of measure 1 and let B be an orthonormal exponential basis on the unit cube of $R^d$. Can B be a frame, or a Riesz basis, or a Riesz sequence on D?

*Joint work with Alberto Mizrahi (Florida International University) and and Alex Tepper (Florida International University).*