# "NORMS ON A DUAL SPACE THAT ARE NOT DUAL NORMS."

## FUNCTIONAL ANALYSIS SEMINAR SERIES, DEPARTMENT OF MATHEMATICS, U. PITTSBURGH

### (1) 3:00 PM - 3:50 PM, TUESDAY 29 TH JANUARY 2019;
### (2) 4:00 PM - 4:50 PM, THURSDAY 31 ST JANUARY 2019.

### ROOM(S): TO BE ANNOUNCED

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## Abstract

The dual of a Banach space $X$ is the vector space of all linear bounded functionals on $X$. Every equivalent norm $p(\cdot)$ on $X$ leads to an equivalent norm on the dual space $X^*$ given by

$$q(f) = \sup\{|f(x)| : x \in X, \ p(x) \leq 1\} \qquad \forall f \in X^*.$$

Nevertheless, not every equivalent norm on the dual space $X^*$ comes from a norm on $X$. We will approach this topic in its general form and we will prove that reflexivity in fact makes the difference.