

# Topology Seminar

**Hiro Tanaka**

of Harvard University will be speaking on

Bridgeland stability conditions,  
algebraic  $k$  theory, and factorization  
homology over the circle

on October 7 at 4:30 in  
MIT Room 2-131

Consider any stable  $\infty$ -category  $\mathcal{C}$ : Examples include  $\mathrm{DbCoh}(X)$ , or the category of modules over some ring spectrum. We generalize the notion of a Bridgeland stability condition for a triangulated category to one for  $\mathcal{C}$ , and under some assumptions, the space of stability conditions is a complex manifold. For every stability condition  $\sigma$ , one can obtain a filtration on the algebraic  $K$ -theory of  $\mathcal{C}$ . These filtrations vary on the complex manifold only along real codimension 1 “walls” inside the complex manifold, and there should be a “wall-crossing formula” relating the  $E_2$  pages of the spectral sequence associated to a filtration. I started looking into this because I wanted to encode Hall-algebra-like structures on the Ran space of the circle, so I will discuss that as motivation first.