

Title: Polymer translocation : alternative driving forces

Date: Dec 05, 2013 02:20 PM

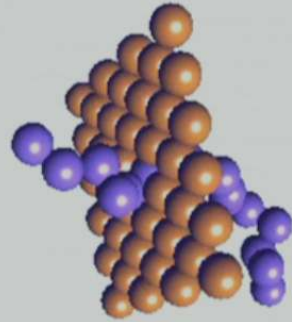
URL: <http://pirsa.org/13120016>

Abstract: TBA



# Undriven escape

1. Outline
2. [Introduction](#)  
Complex  
Escape
3. **Translocation  
vs escape  
(F=0)**
4. Recent F=0  
simulation  
results
5. Some  
examples of  
alternative  
asymmetries
6. Viscosity  
gradients
7. Free volume  
gradients
8. Disorder  
gradients
9. Some  
conclusions



$$\tau \sim N^\alpha$$

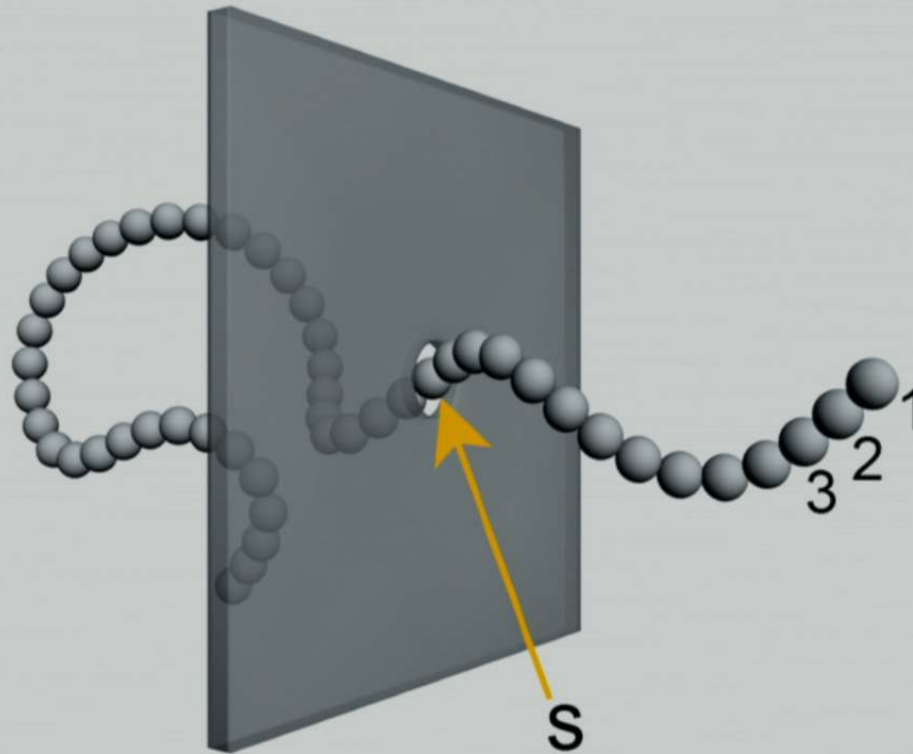
$$\alpha = 2, \boxed{2.2}, 2.496, 2.59, 3.0$$

Quasi-static ?

Global or local friction ?

1. Outline
2. Introduction
3. Escape:  $F=0$
- 4. testing  $r_p$**
5. Some examples of alternative asymmetries
6. Viscosity gradients
7. Free volume gradients
8. Disorder gradients
9. Some conclusions

## Langevin with a flat wall: radius is a real number



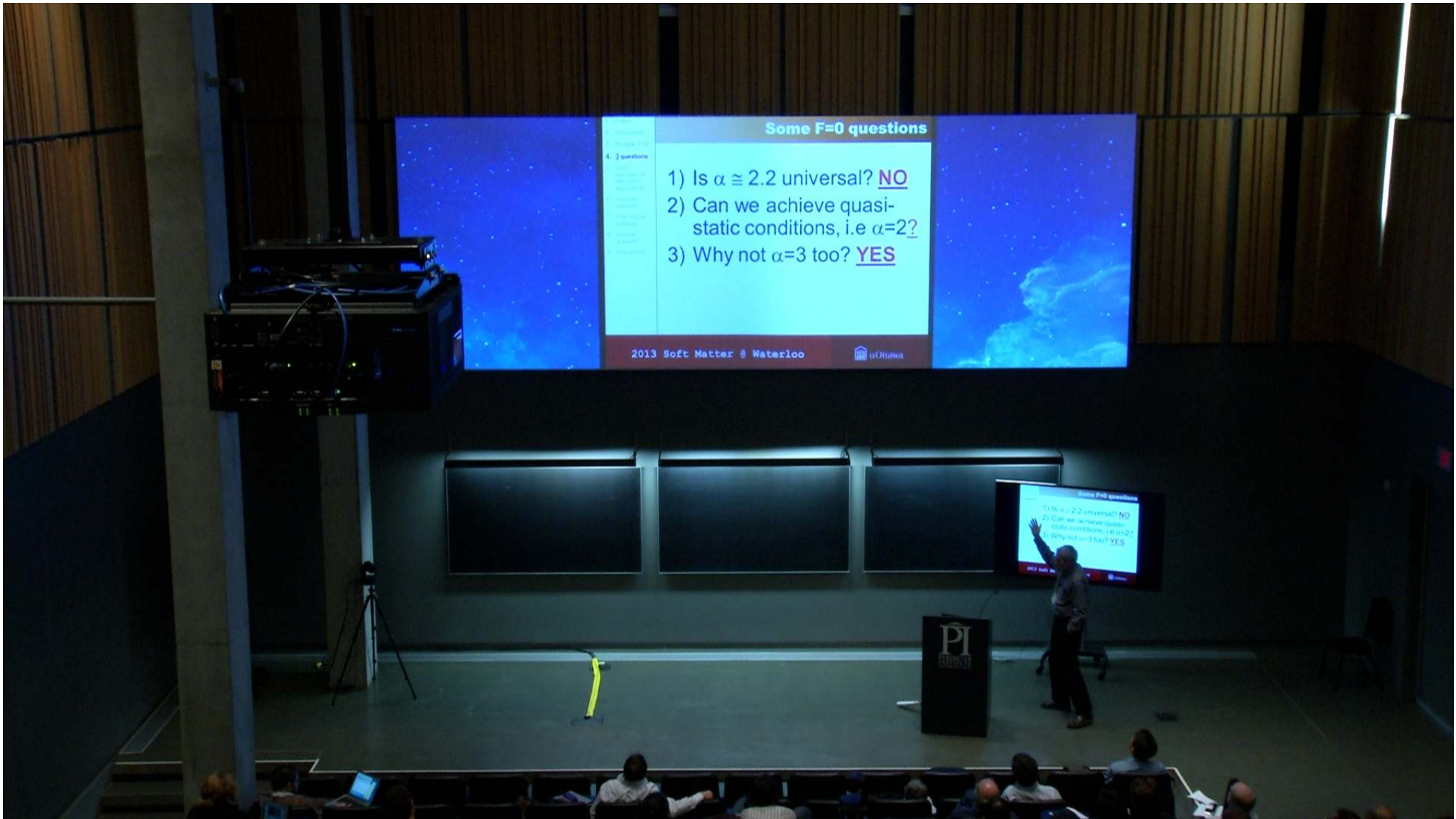
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1. Outline
2. Introduction
3. Escape:  $F=0$
4. **3 questions**
5. Some examples of alternative asymmetries
6. Viscosity gradients
7. Free volume gradients
8. Disorder gradients
9. Conclusions

## Some $F=0$ questions


- 1) Is  $\alpha \cong 2.2$  universal? **NO**
- 2) Can we achieve quasi-static conditions, i.e.  $\alpha=2$ ? **?**
- 3) Why not  $\alpha=3$  too? **YES**

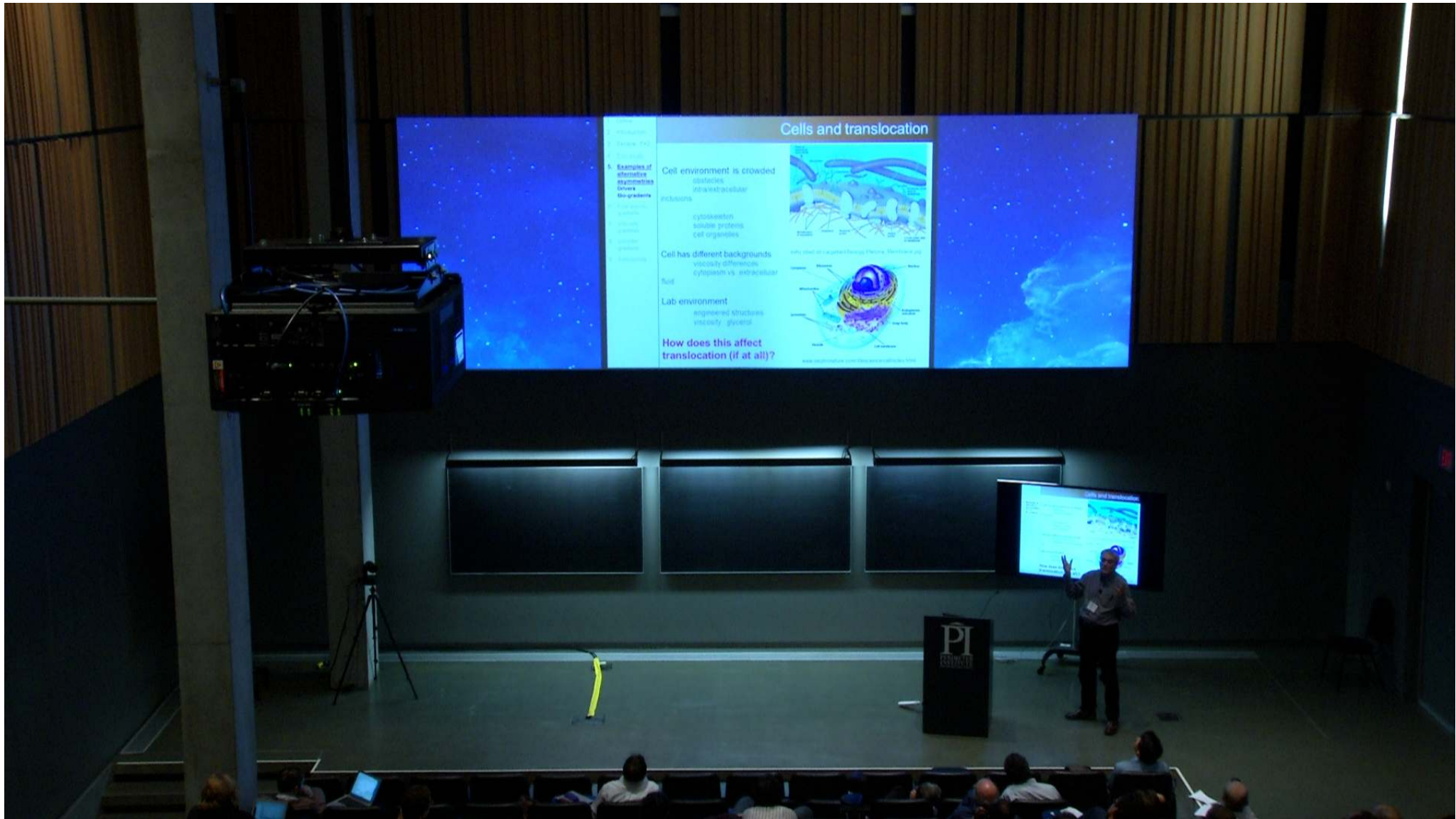


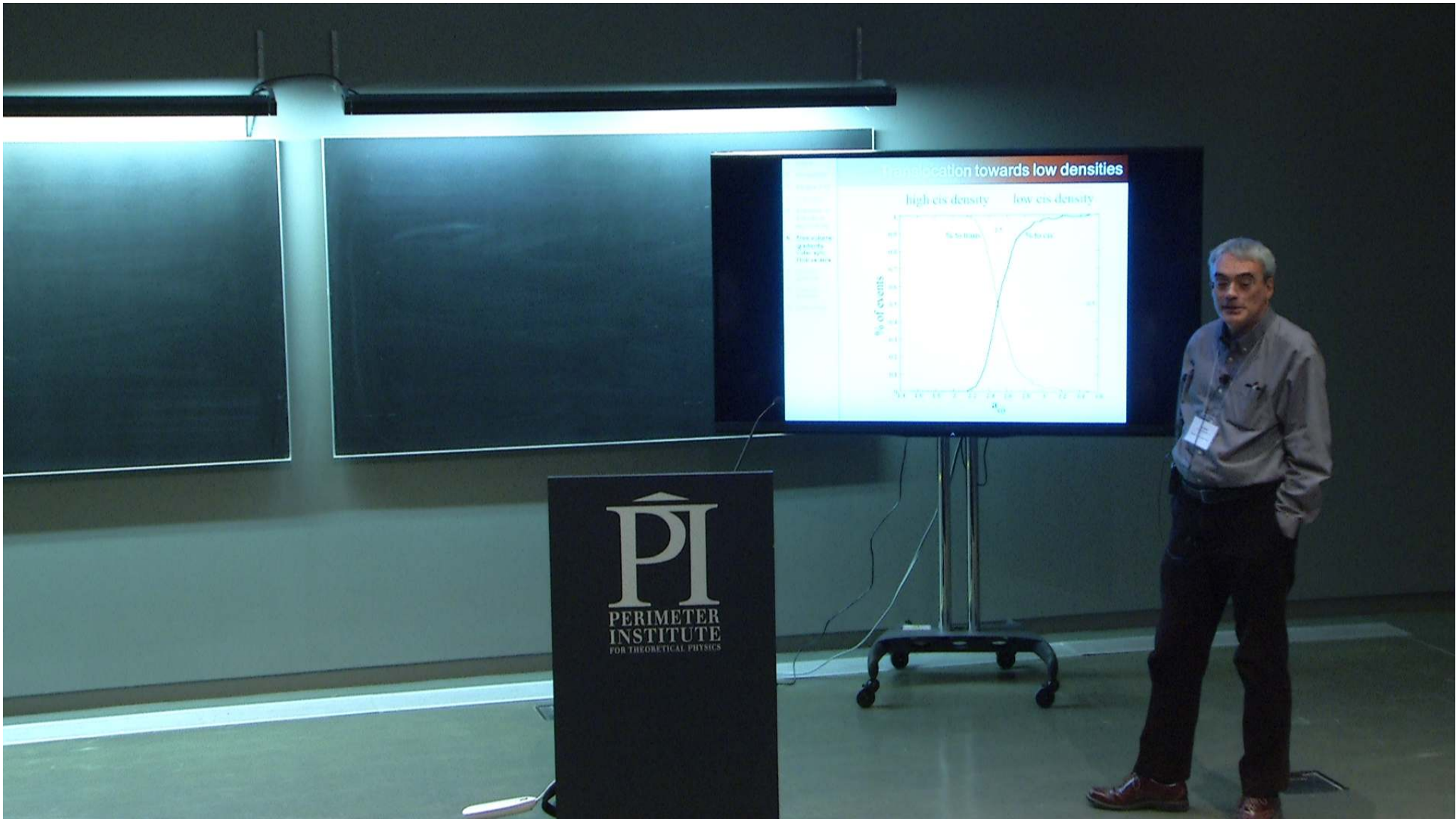
Some F=0 questions

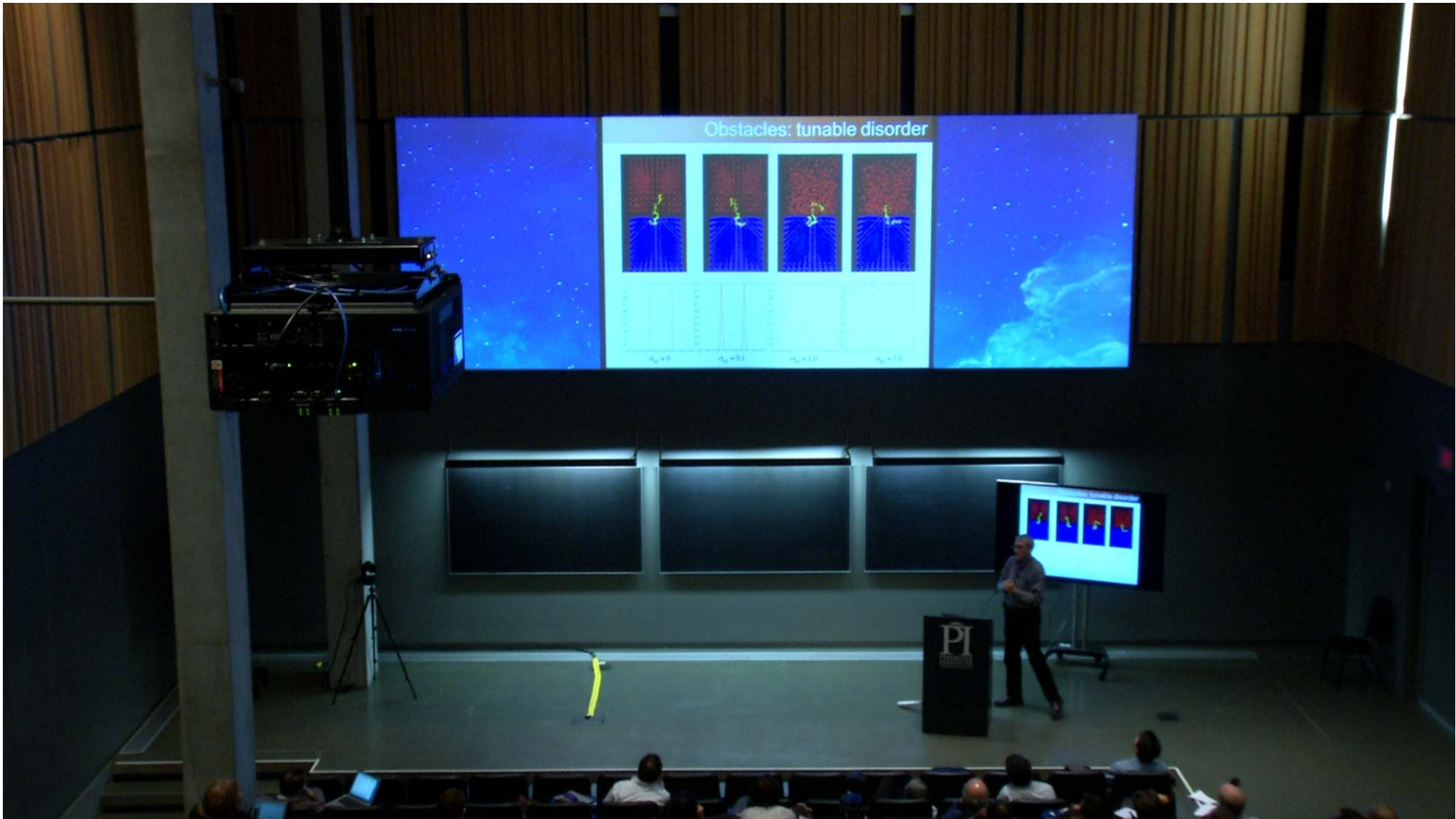
4. questions

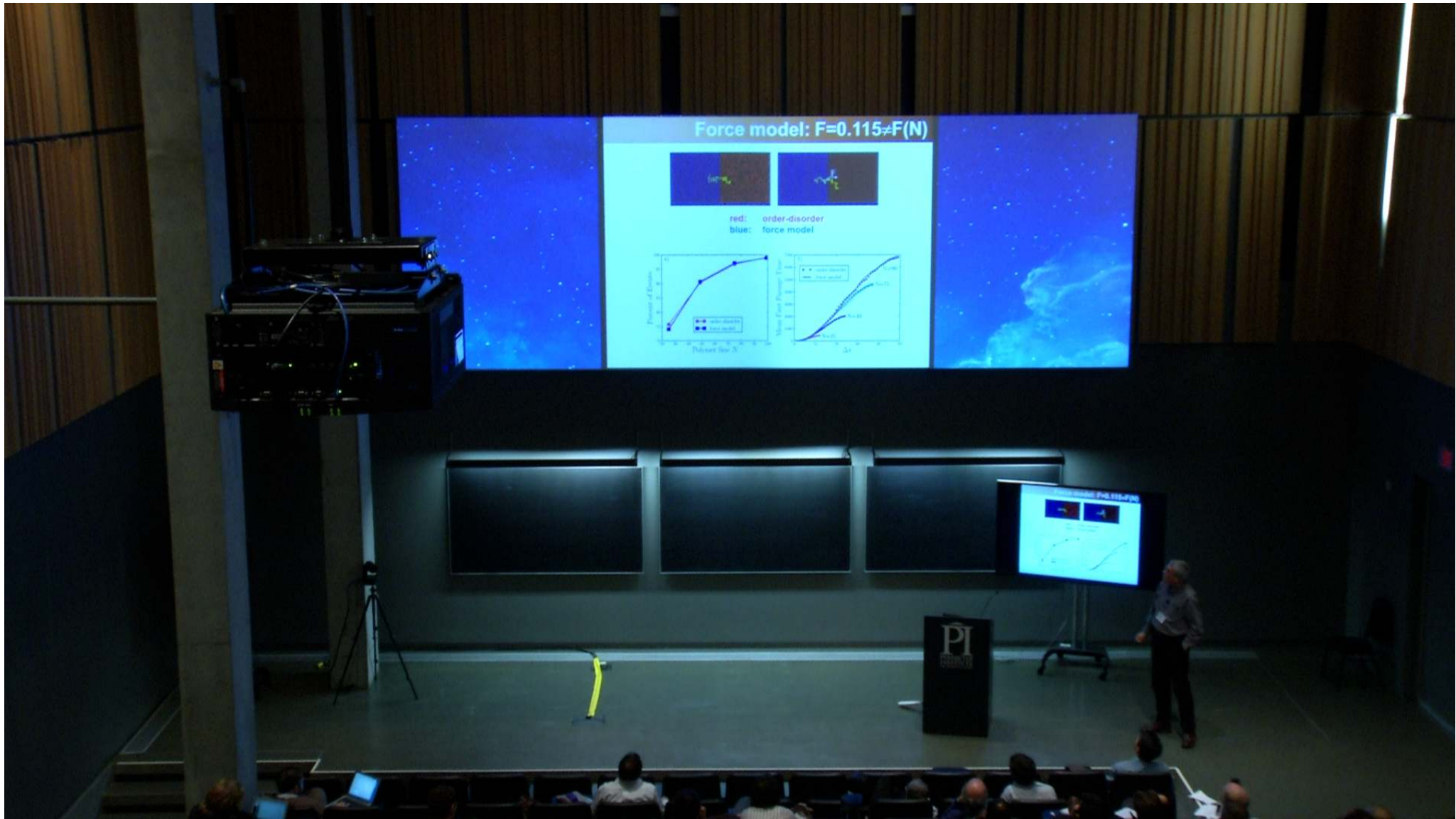
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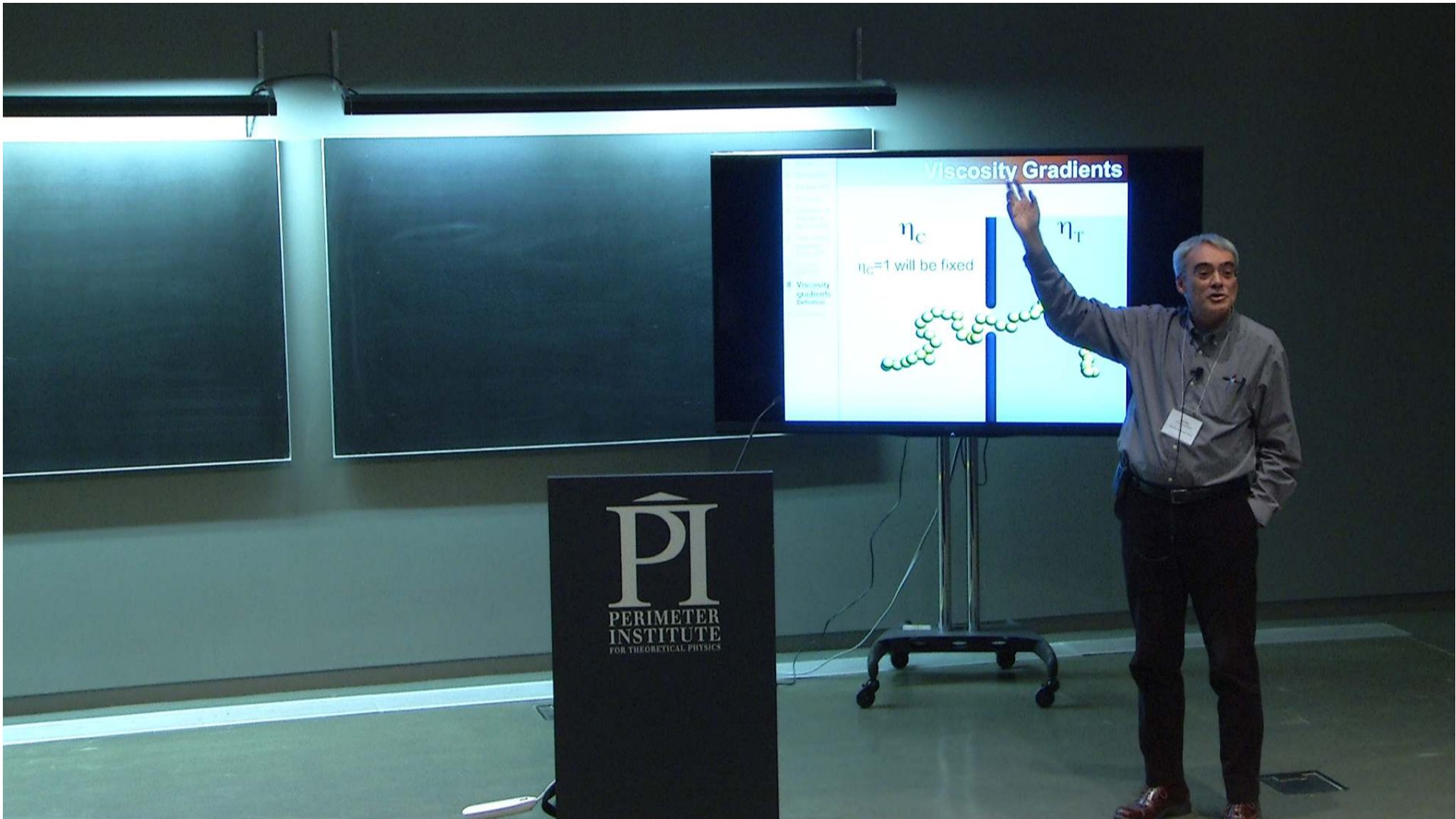
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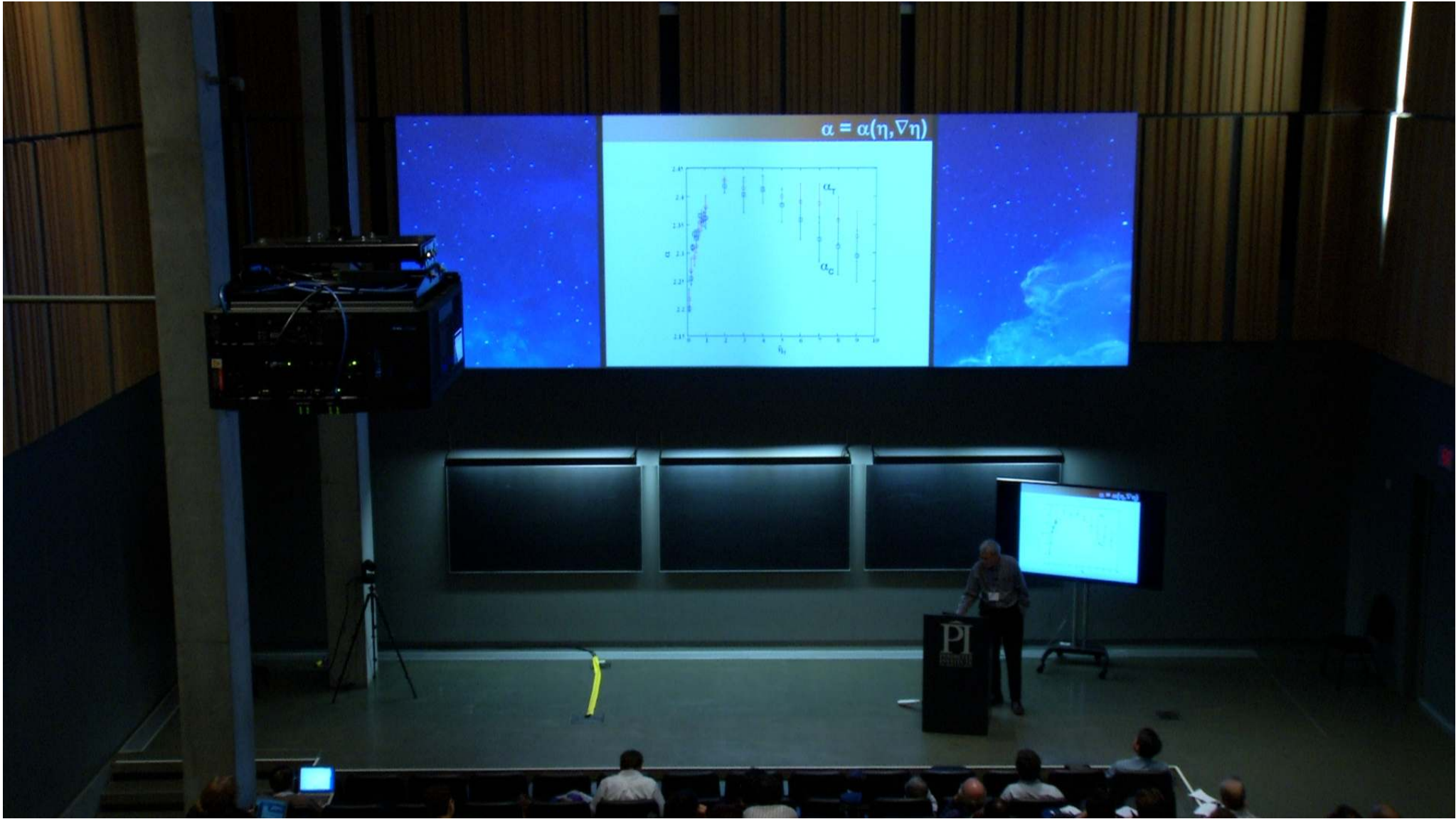












# Conclusions: on gradients

## Translocation driven by asymmetry

- obstacles  $\leftrightarrow$  viscosity gradient
- effective force on monomers in pore
- direction of translocation
- translocation time

## In a “real” situation

- final bias: includes all these factors
- hard to predict net result

## Also

- mobile obstacles, vibrating obstacles

