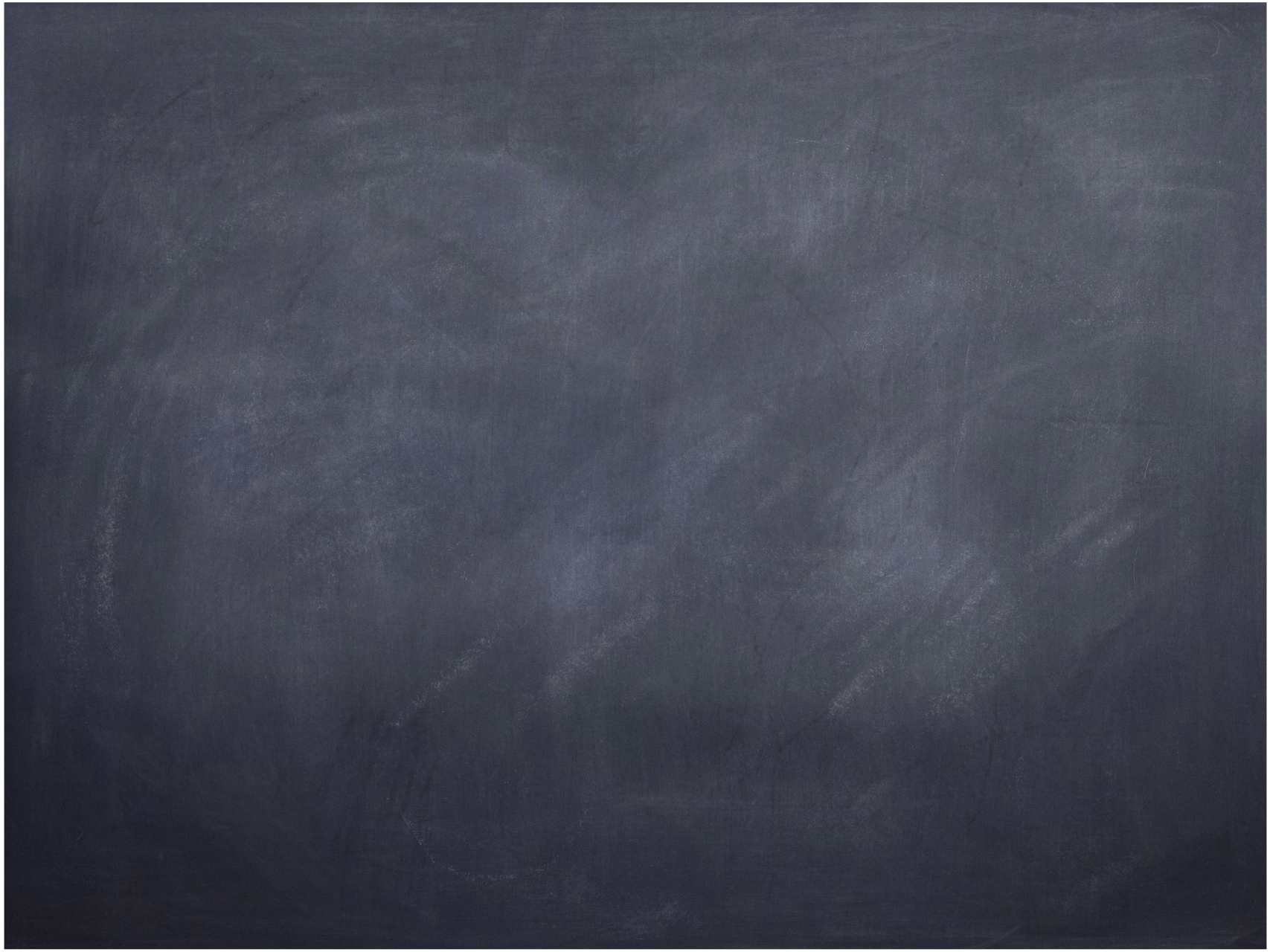
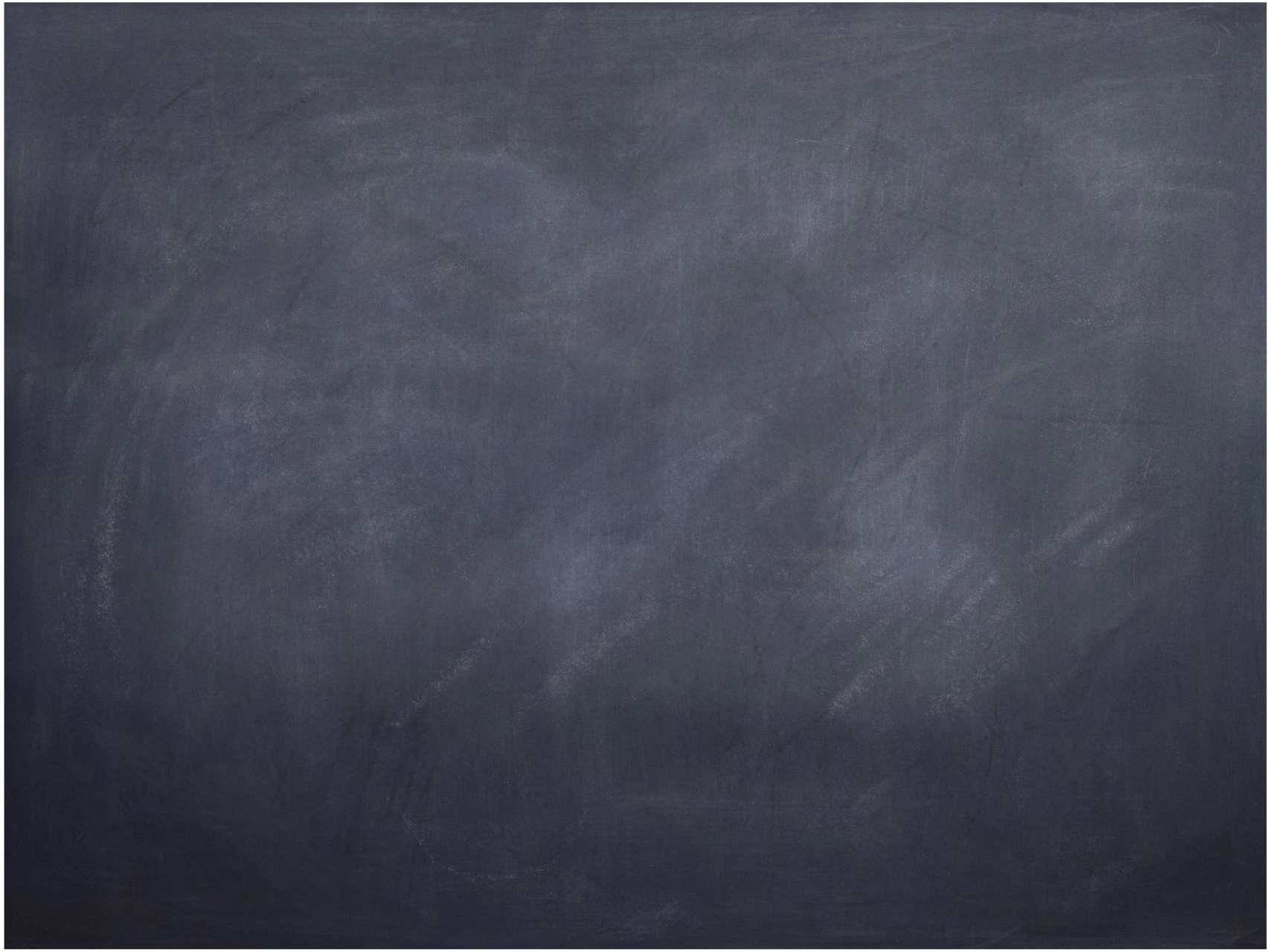
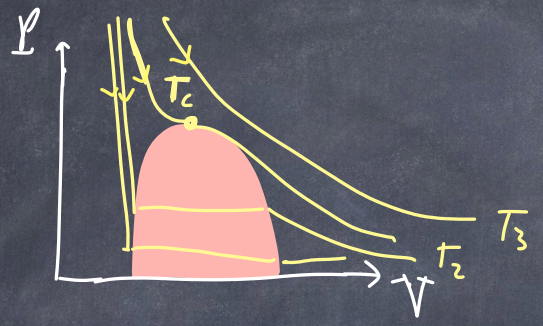
PHY117 HS2024

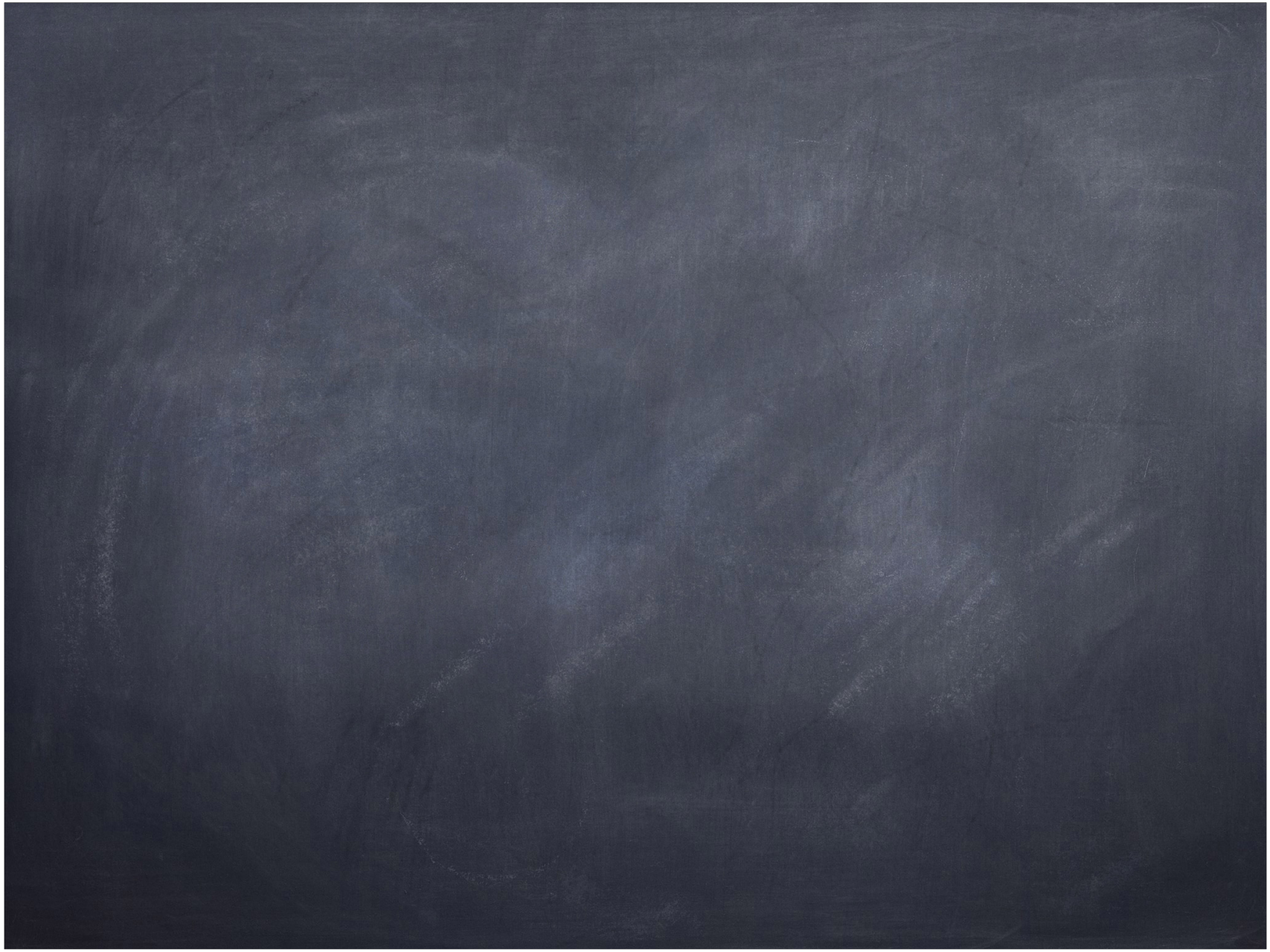
Week 6, Lecture 2
Oct. 23rd, 2024
Prof. Ben Kilminster



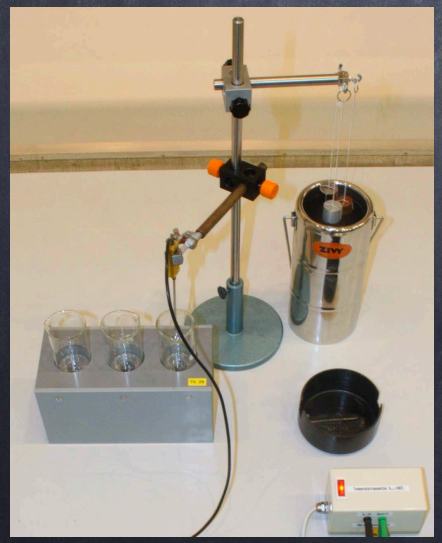


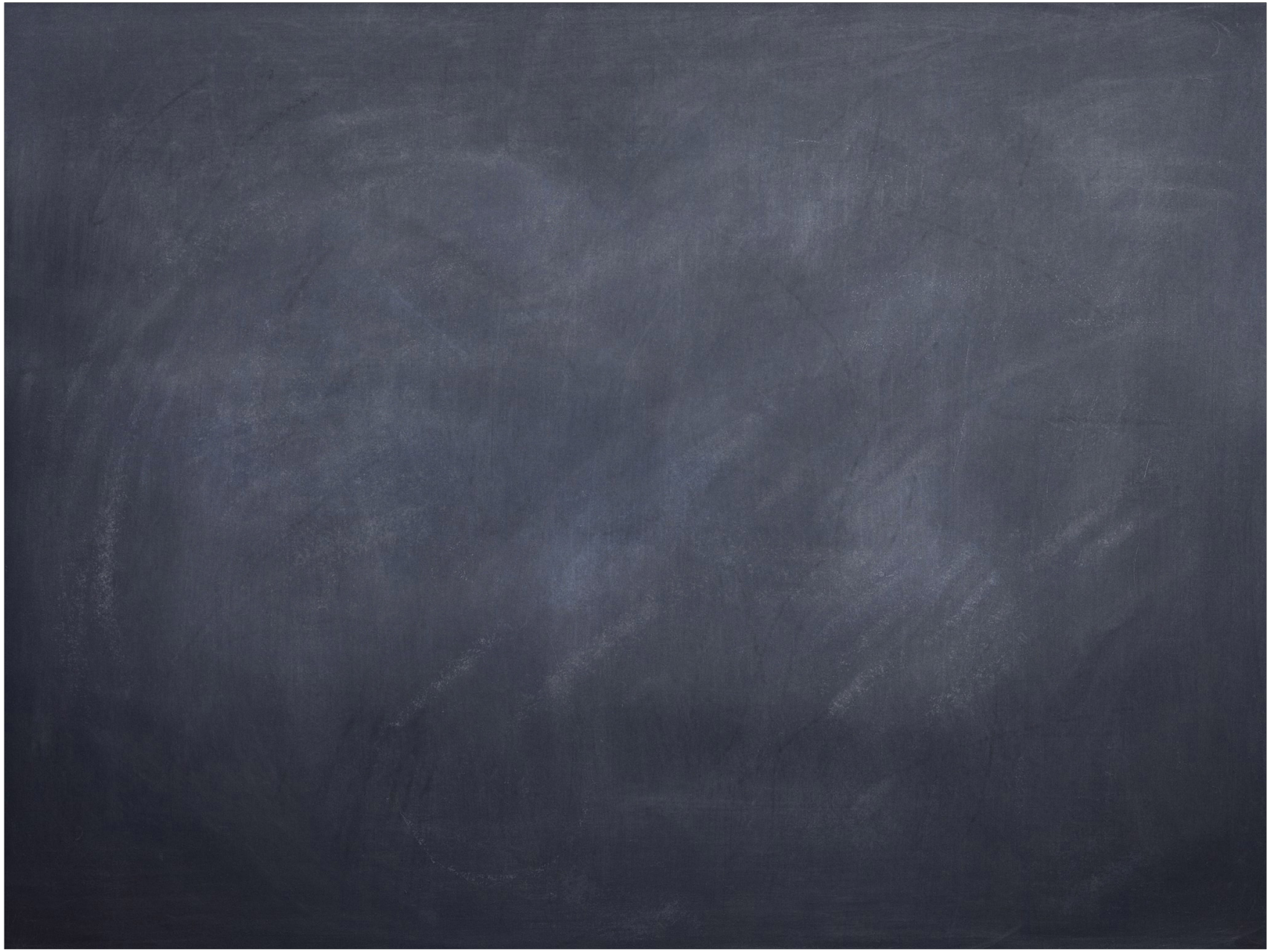
Above T_c, the behavior of the gas is described by the Van der Waals equation. But below T_c, we see something different.



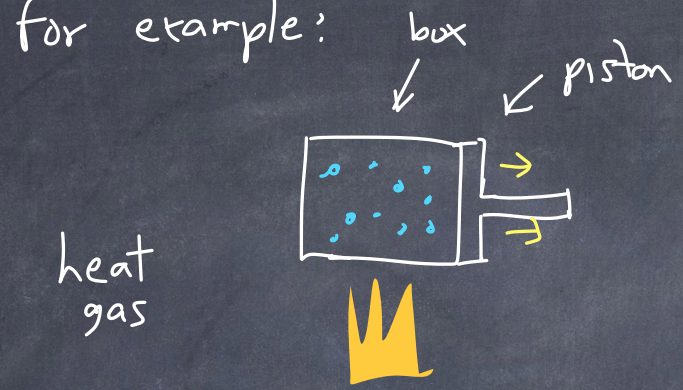


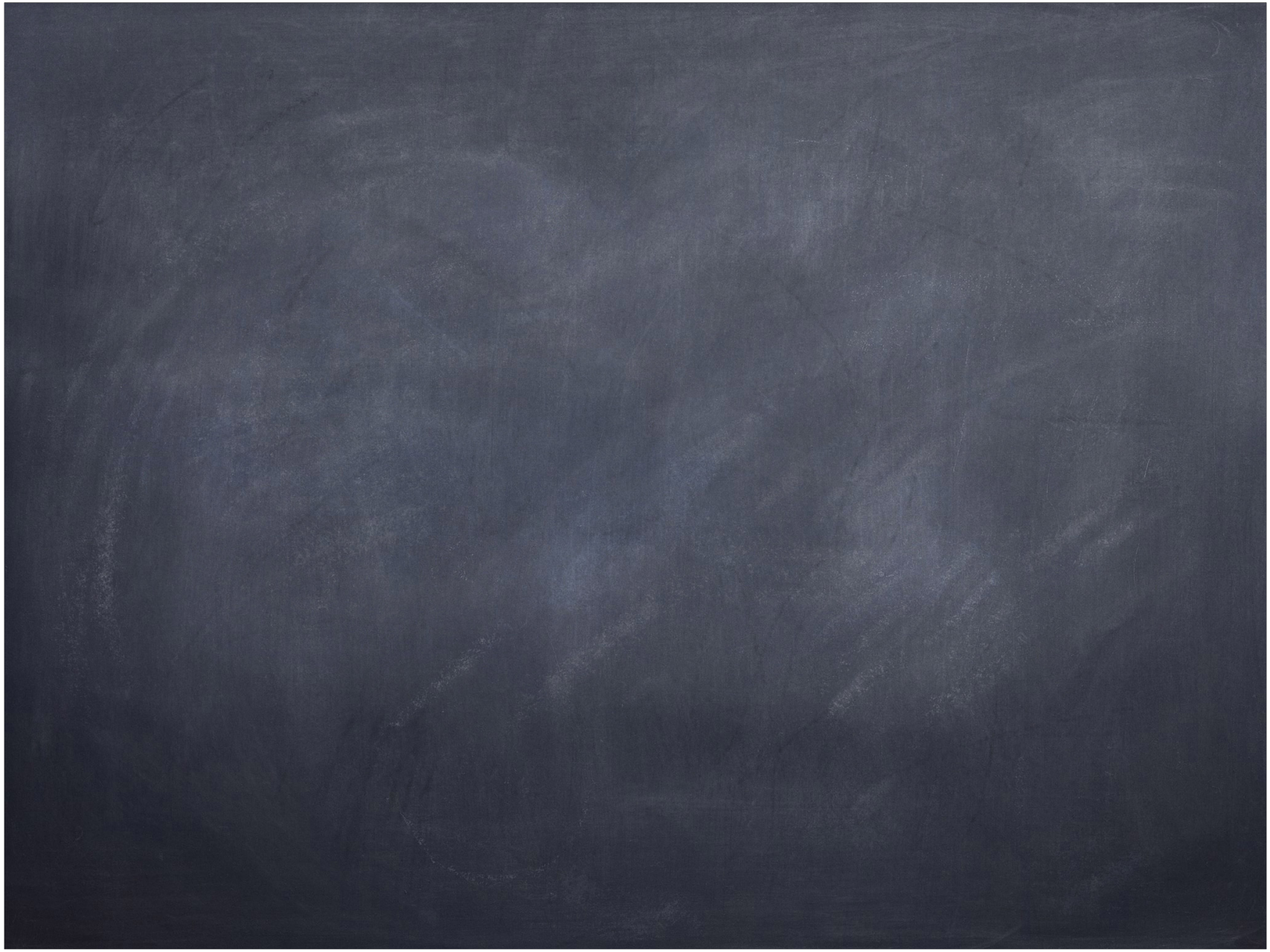
Substances	$c \left[\frac{J}{kg \cdot K}\right]$	$C_m \left[\frac{J}{mol \cdot K}\right]$
copper	386	24.5
aluminum	900	24.2
silicon	710	42.2
water	4186	75.3
pine wood	1500	
oak wood	2400	



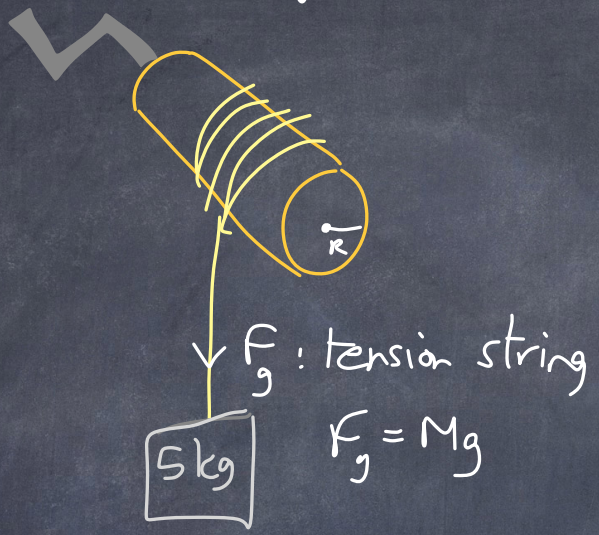


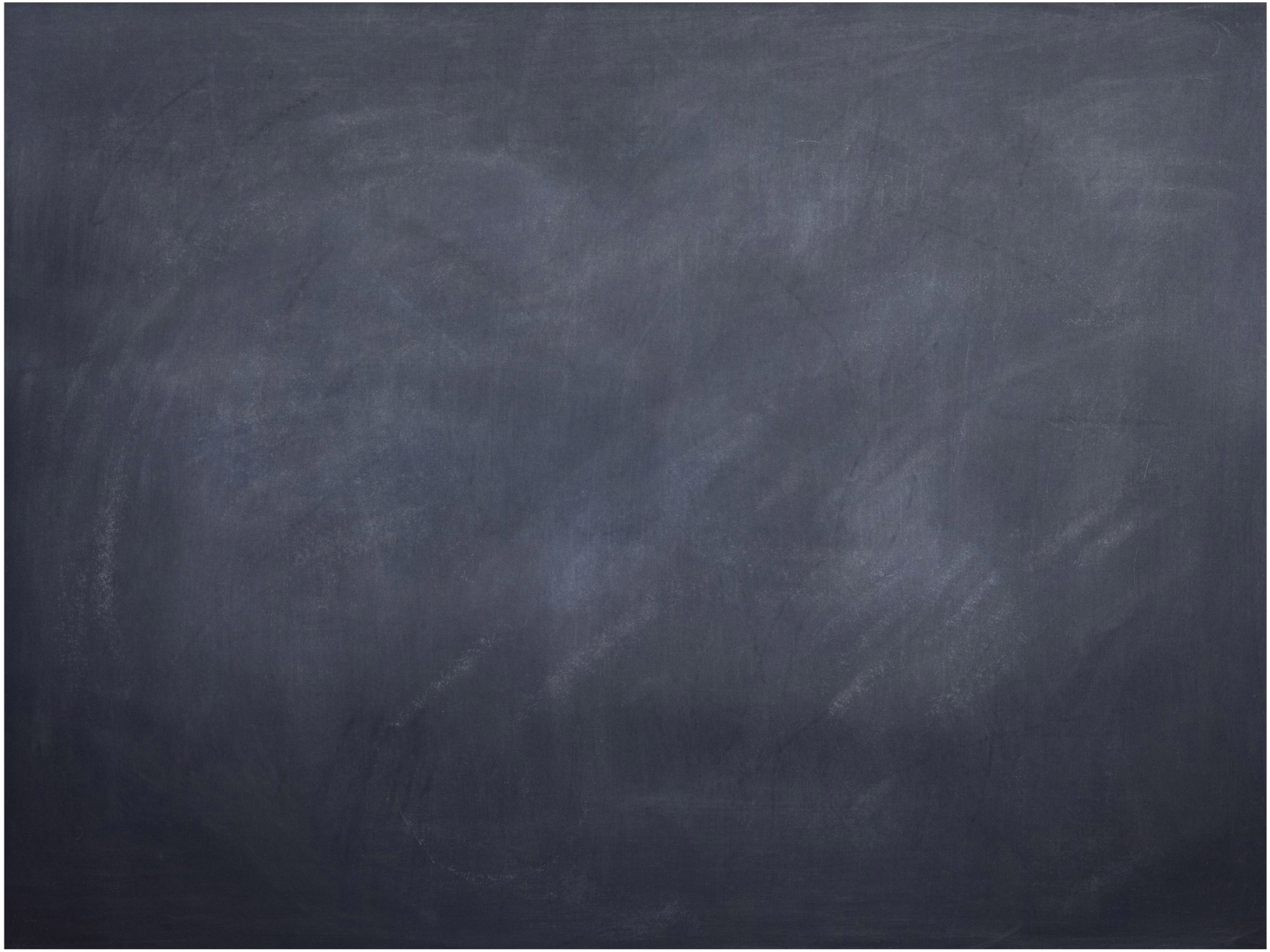
For example:

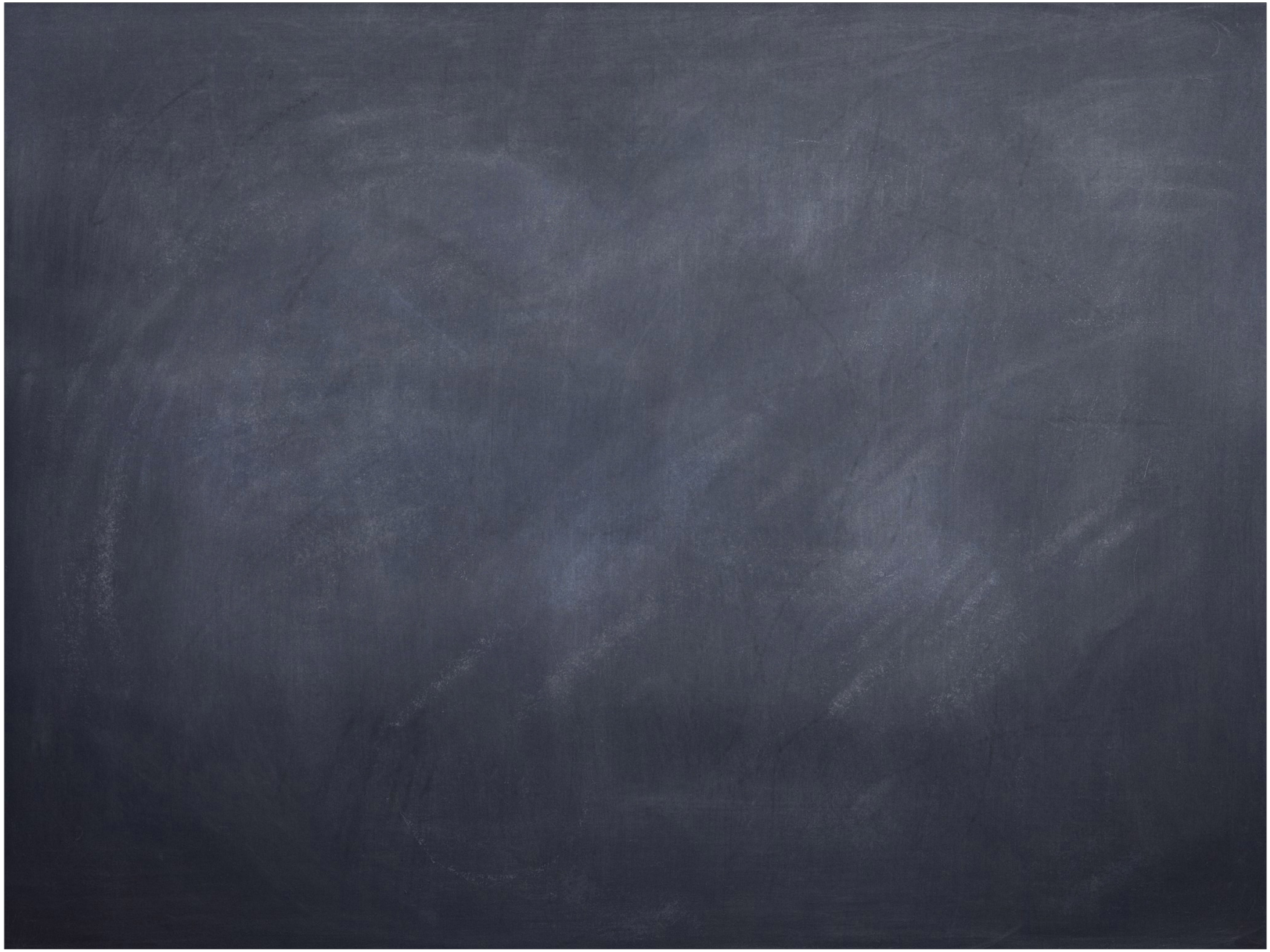




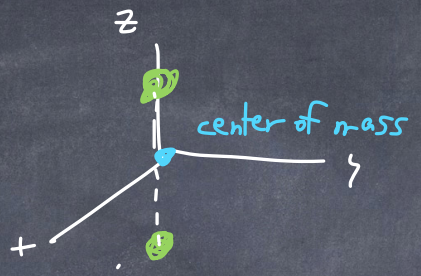
Can we use torque to increase temperature ?





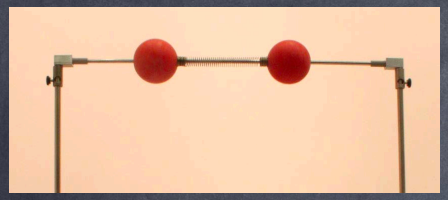


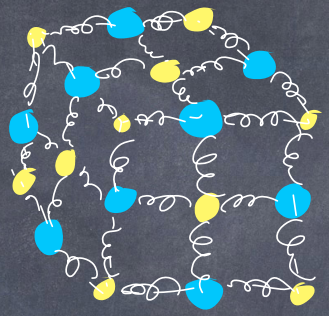
Consider a diatomic molecule in a gas (N_2, O_2, N_2 ...)
(at constant volume)

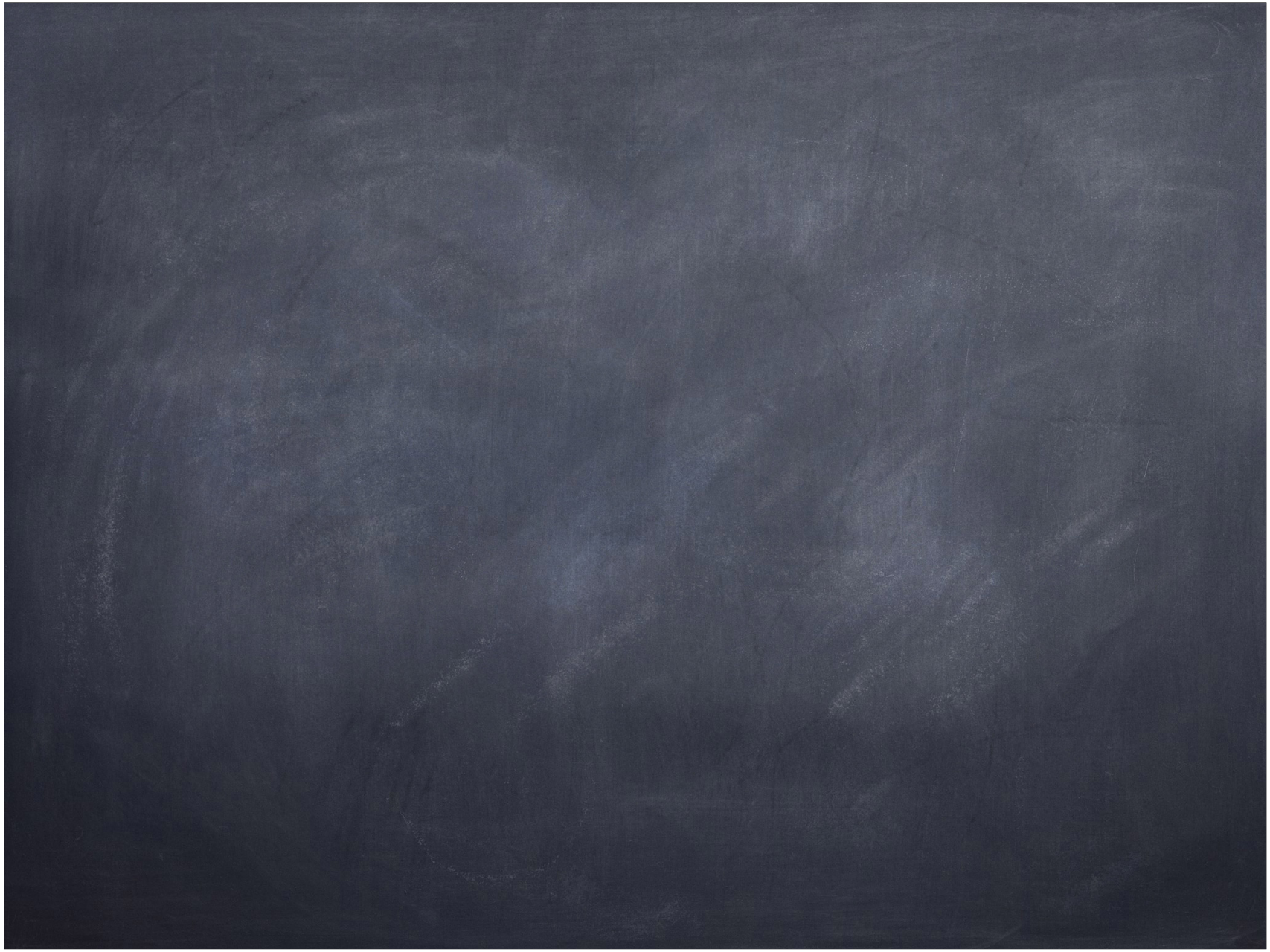


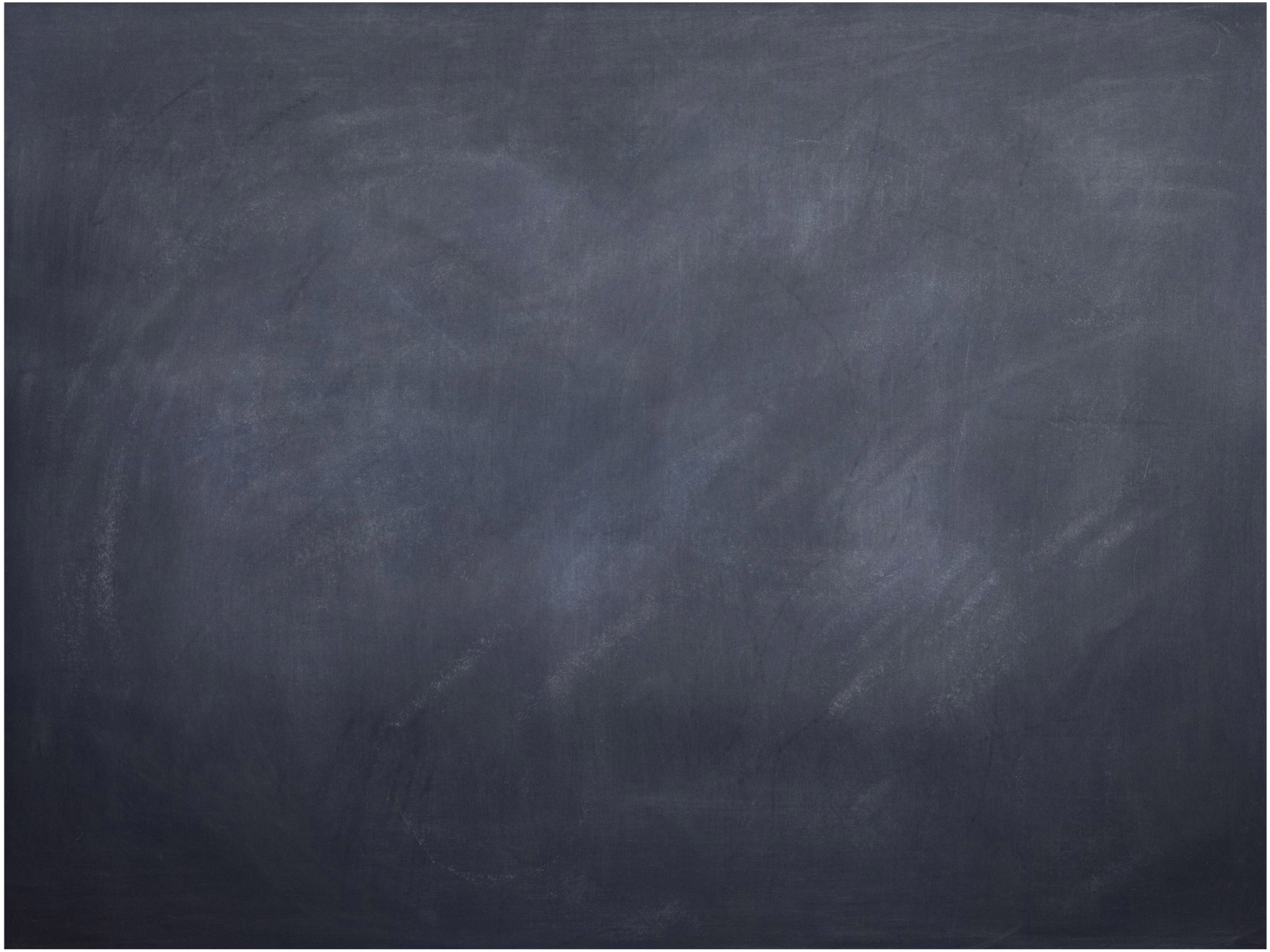
olume.

Likewise, for a solid, such as NaCl

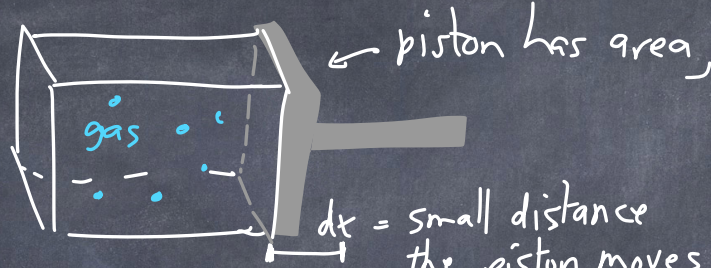




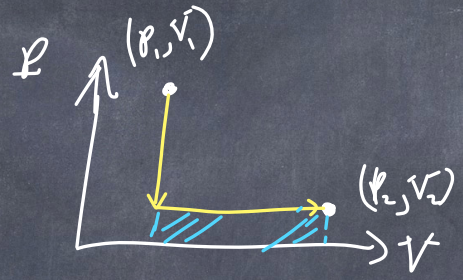


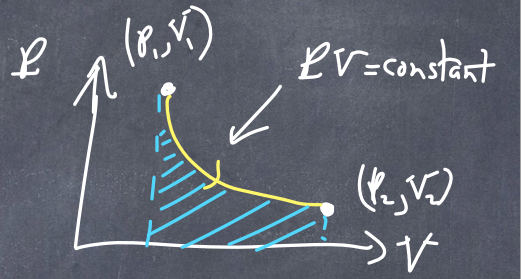


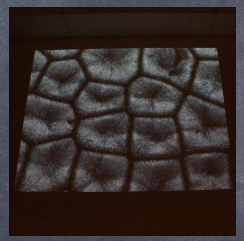
Work done by a gas to move a piston

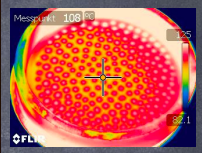


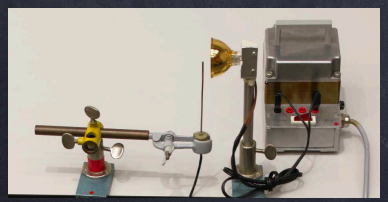
To go from (P_1, V_1) to (P_2, V_2) it depends on how we do it.







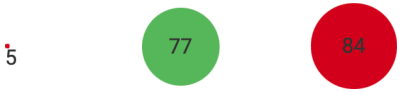




Quiz 3

If the objects reaches a constant velocity (terminal velocity), gravity is still doing work on the object.

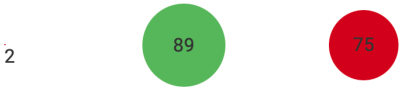
If the objects reaches a constant velocity (terminal velocity), there is no net work on the object.



Question

Which is true about inelastic collisions?

Total energy is conserved



Momentum of the whole system is conserved

Quiz 4

When torque is zero, angular momentum is zero.

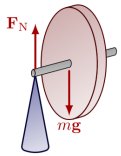
1 | 41 | 38

Question

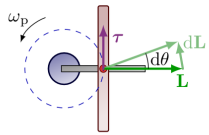
Which direction does a spinning object precess.

In the direction of the angular momentum of the spinning object.

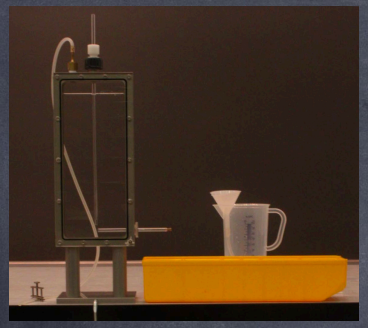
1 | 31 | 42



(a) The handle allows the disk to spin around its axis and around the pivot.



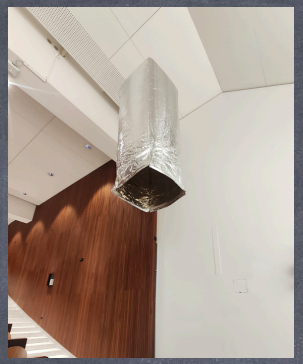
(d) Torque τ perpendicular to angular momentum **L**, will only change its direction.



H21

Th57

Th36



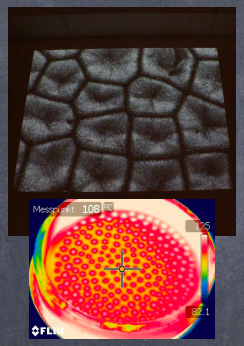
Th58

Th12

Th20

Th63

Th54

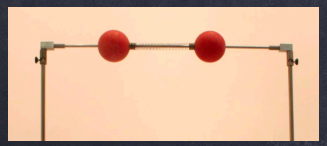


Th35

E12

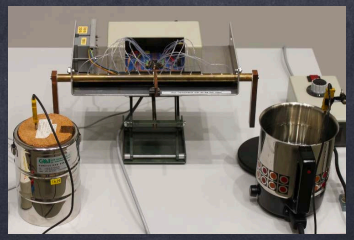
Th19

Th28

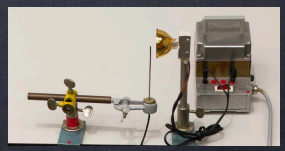


Th27

Th2



Th22



Th48