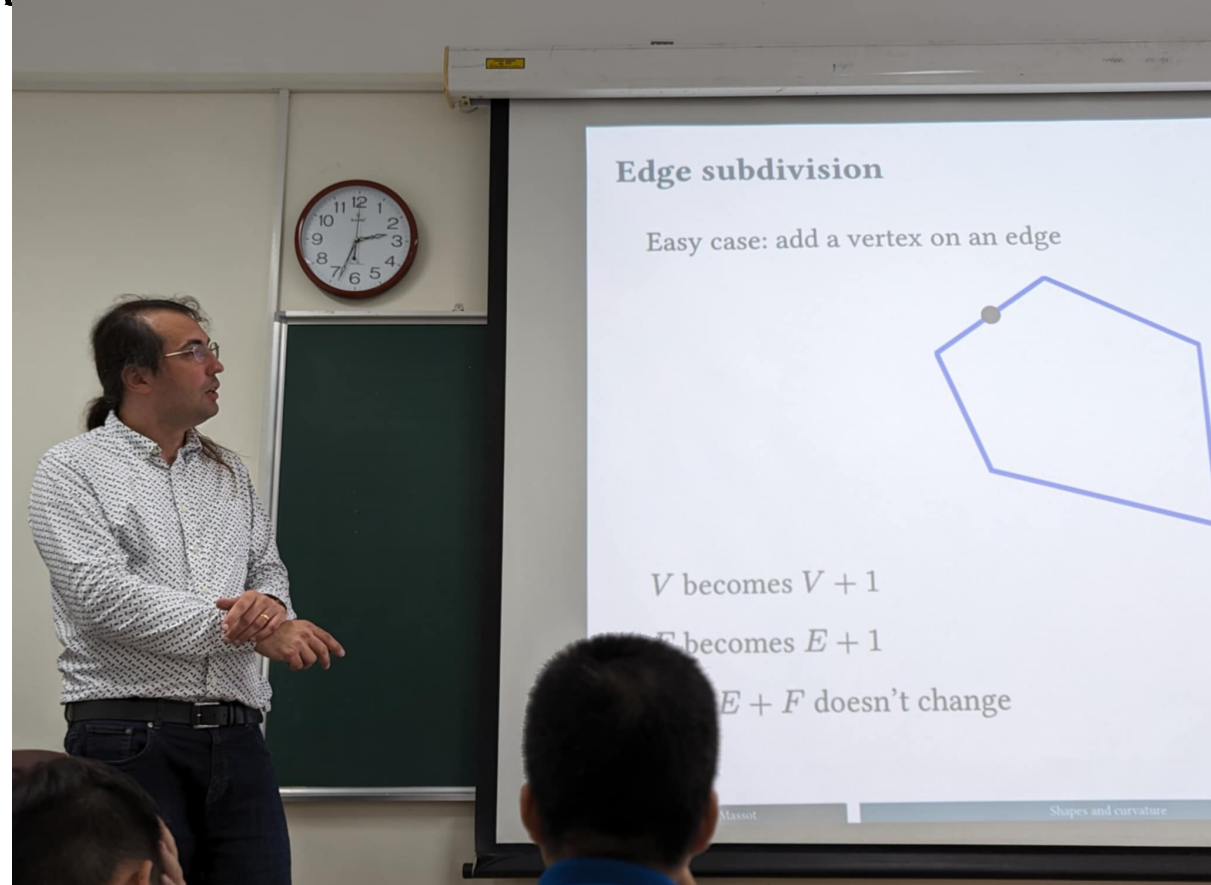
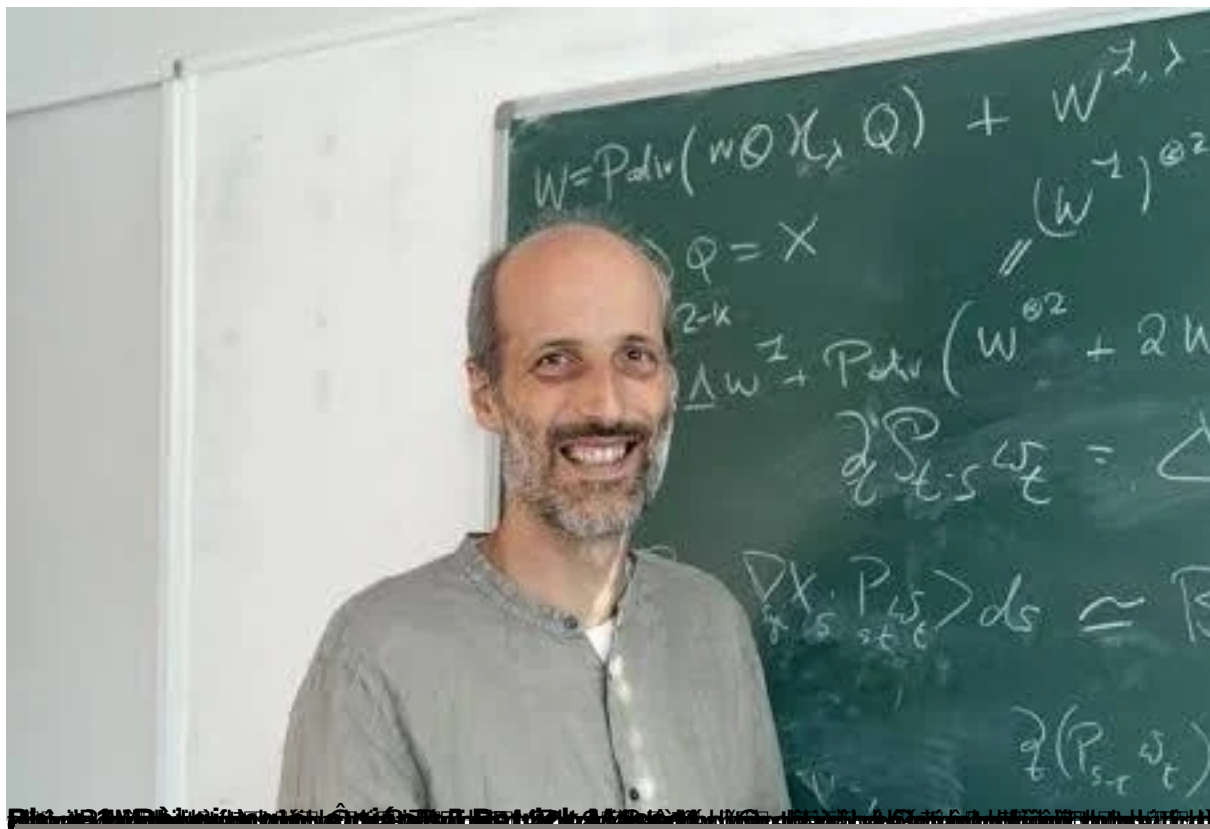


Chi u ngày 25/8/2025, t i Tr ờ ng THPT Chuyên KHTN (182 L ờ ng Th ờ Vinh, Hà N ộ i) đã di ờ n ra ch ờ ng trình Public Lectures Series: Mathematics, Art and Creativity, do Vi ờ n Toán Cao c ờ p ph ờ i h ờ p v ờ i Tr ờ ng THPT Chuyên KHTN t ờ ch ờ c.





§2 Cauchy-Schwarz

sliding slats in frictional contact

before

m_1	$\rightarrow$	v_1
m_2	$\rightarrow$	v_2
m_3	$\rightarrow$	v_3
$\vdots$		

after

	$\rightarrow$	$\langle v \rangle$
	$\rightarrow$	$\langle v \rangle$
	$\rightarrow$	$\langle v \rangle$
$\vdots$		

$\because$ momentum conserved

$$\langle v \rangle = \frac{\sum mv}{\sum m}$$

But *kinetic energy dissipates* :

before after

$$\sum \frac{1}{2} mv^2 \geq \frac{1}{2} (\sum m) \langle v \rangle^2$$

$$\sum m \sum mv^2 \geq (\sum mv)^2$$

Change variables $m \rightarrow m^2$
 $v \rightarrow v/m$ to get

$$\sum m^2 \sum v^2 \geq (\sum mv)^2$$