Title: The Weird World Of Quantum Mechanics - Part 2

Date: Aug 09, 2006 03:45 PM

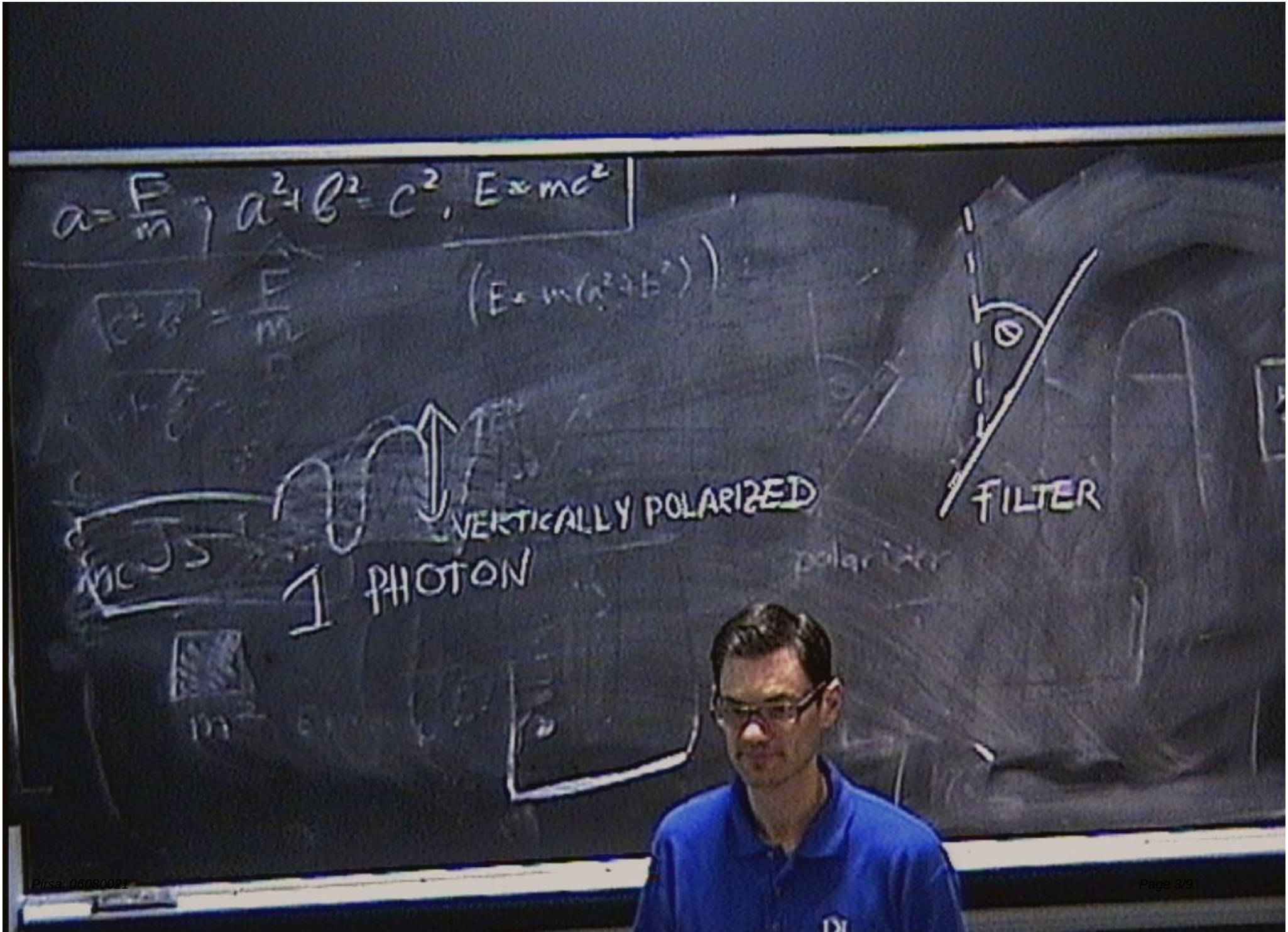
URL: http://pirsa.org/06080021

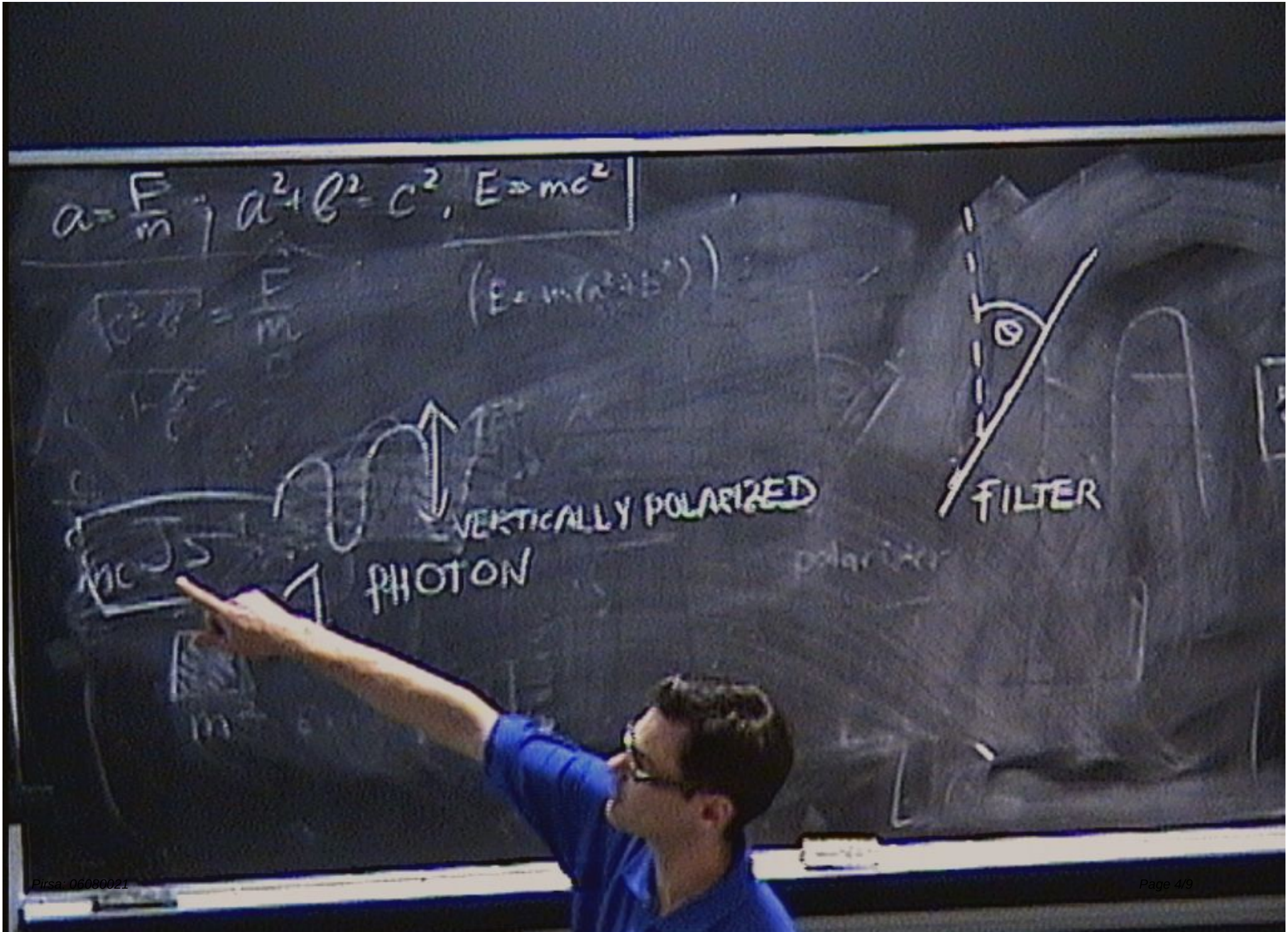
Abstract:

- Student activity:

- What happens if an individual photon that is polarized is incident on a filter such that the angle between the plane of polarization and the plane of the filter is $\phi$?

- Does the photon always pass through?
- Or does it pass through only some of the time?
- If so, then with what probability?
- What is the difference (if any) between the photons that do and do not pass through (and so are absorbed)?


$a = \frac{F}{m}$; $a^2 + b^2 = c^2$, $E = mc^2$
$E = m(a^2 + b^2)$
VERTICALLY POLARIZED
1 PHOTON
FILTER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VERTICALLY POLARIZED
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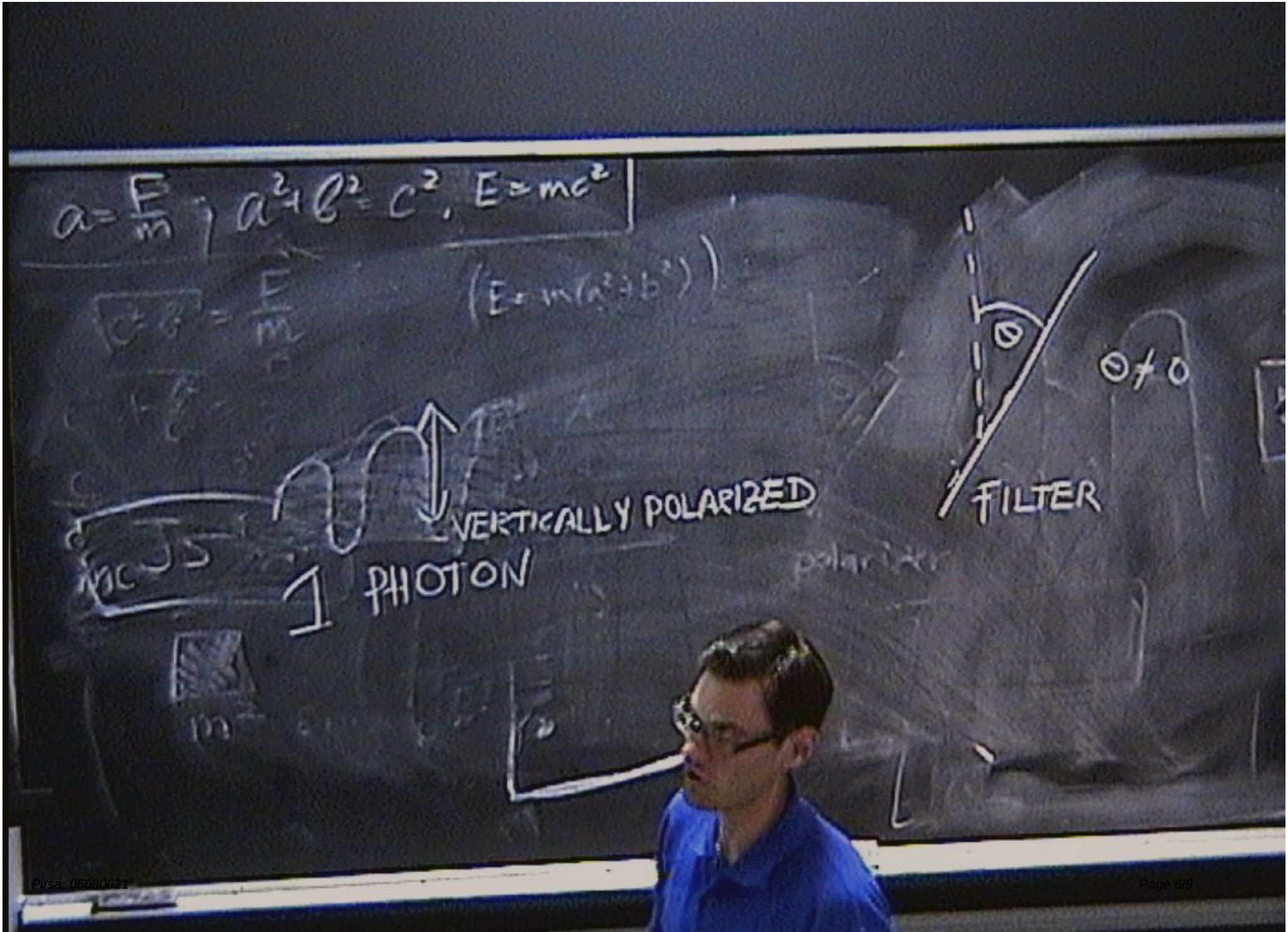
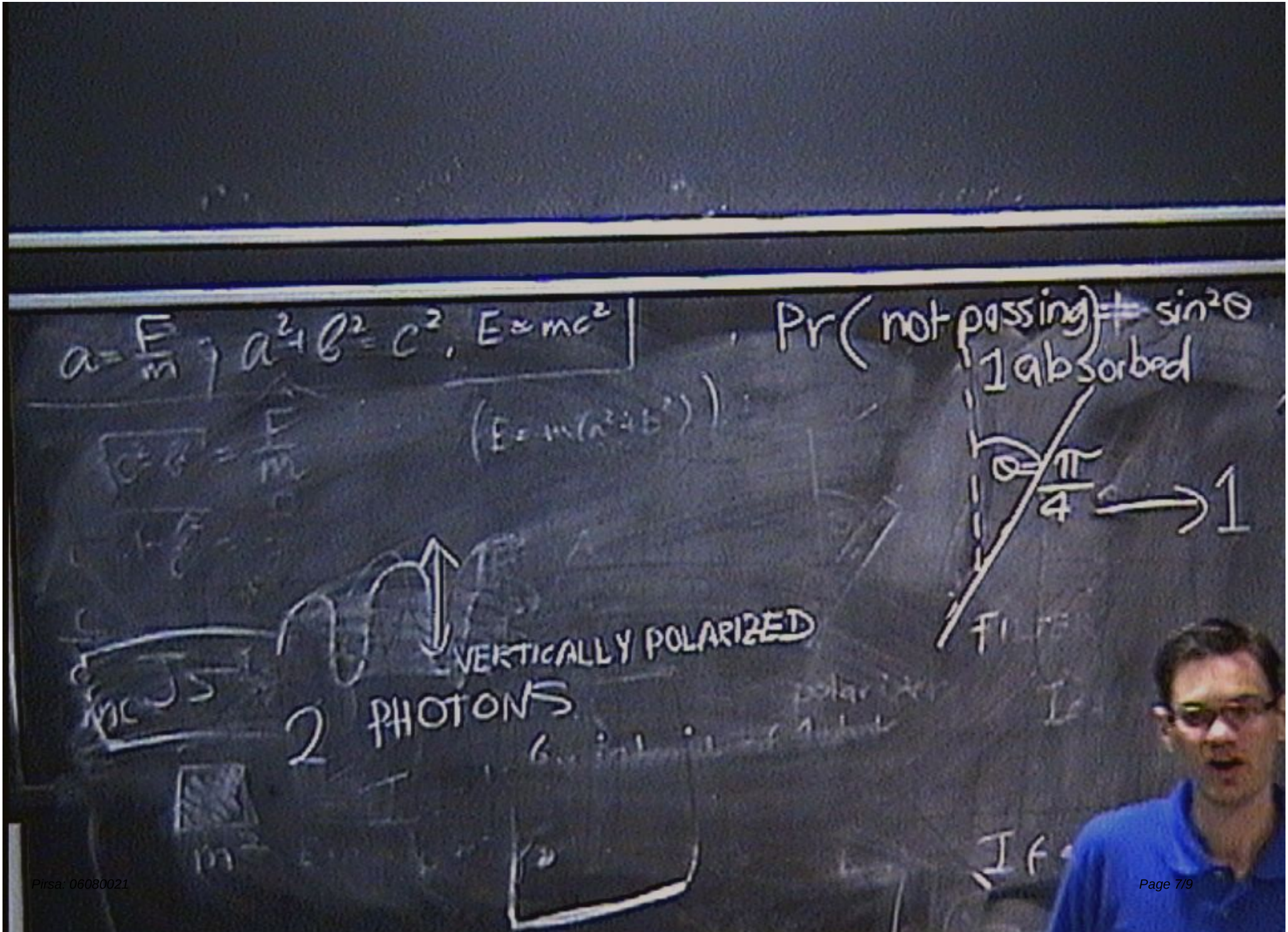
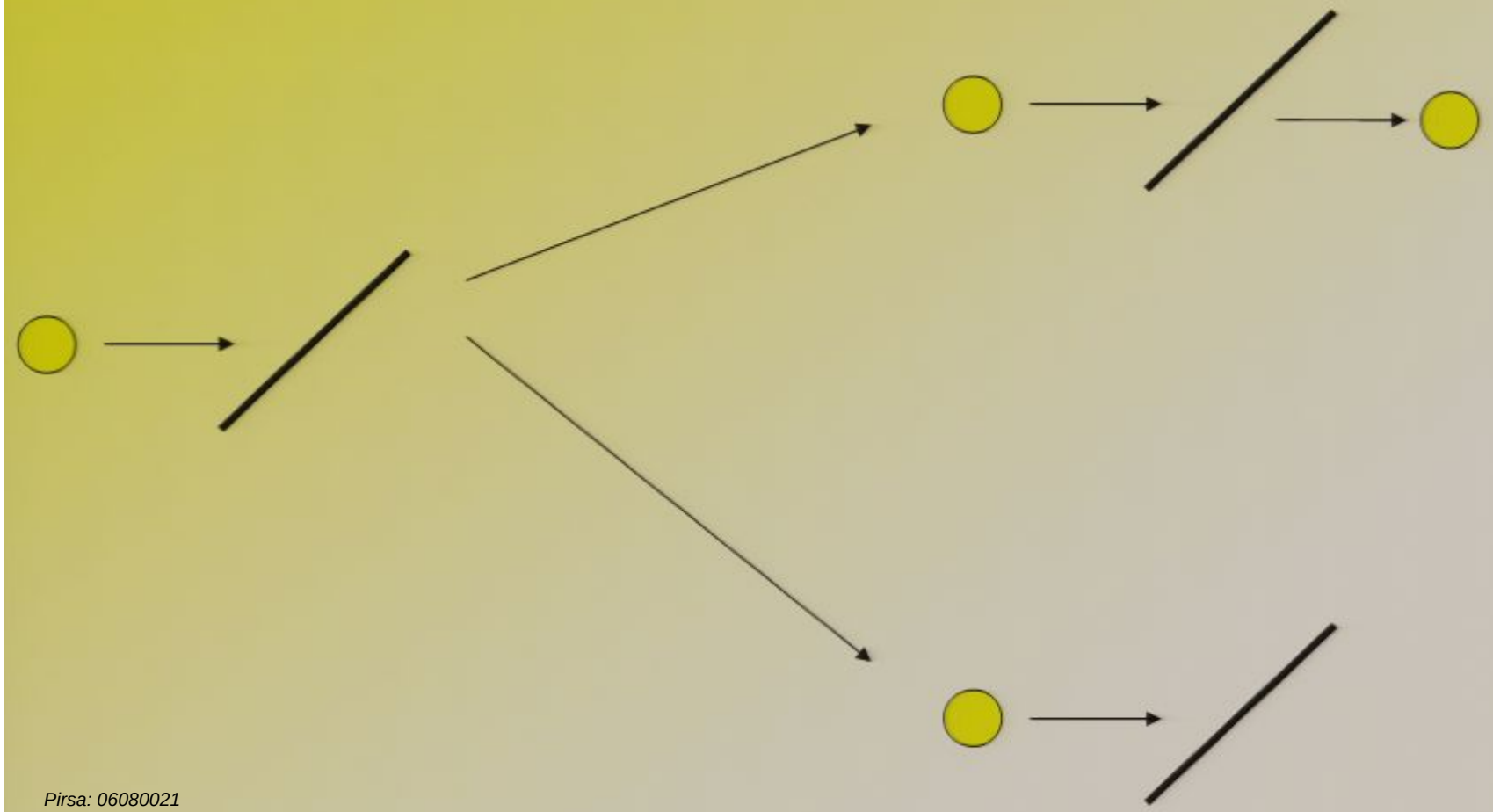
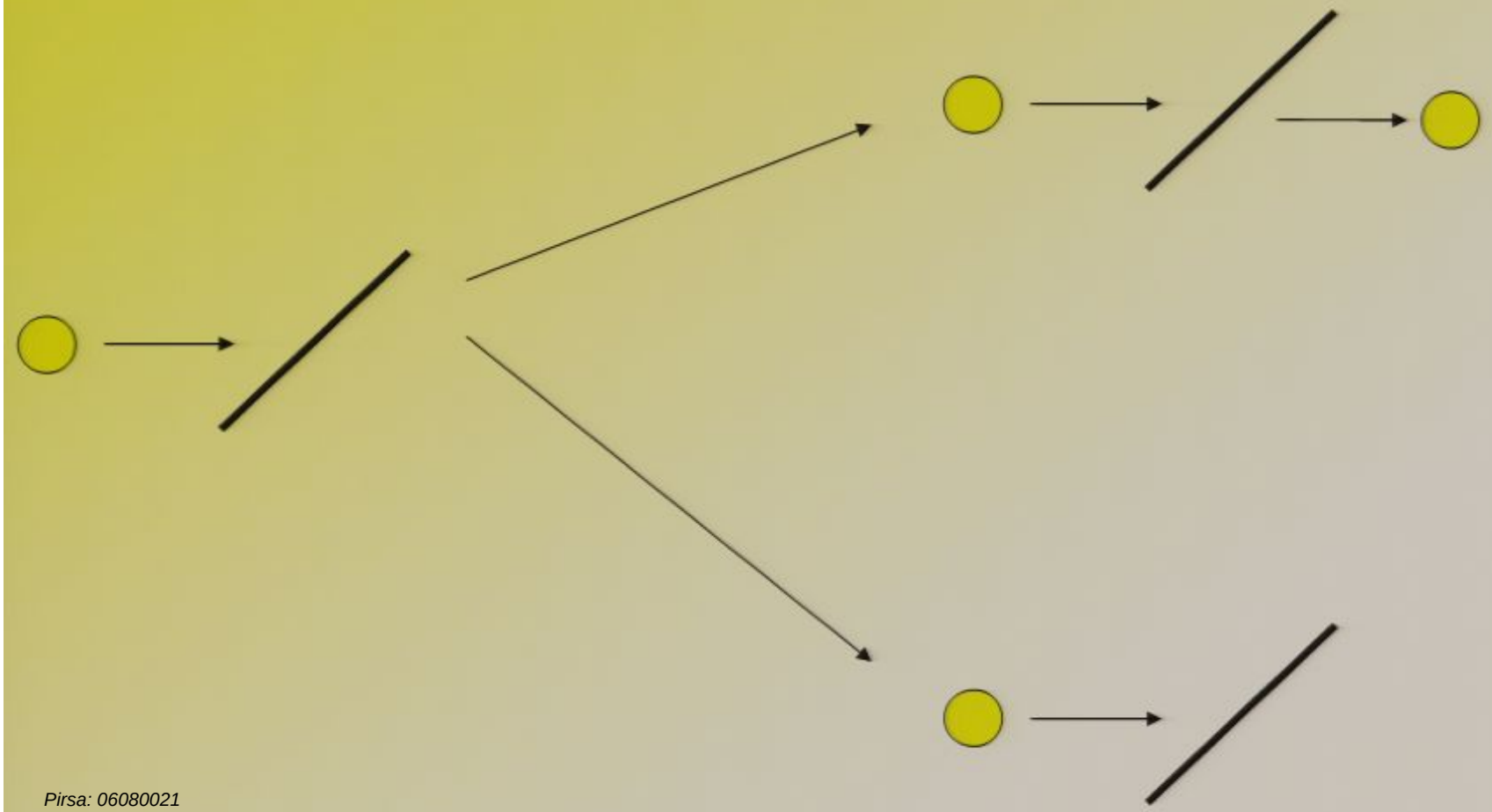

$a = \frac{F}{m}$; $a^2 + b^2 = c^2$, $E = mc^2$
$E = m(a^2 + b^2)$
$\theta \neq 0$
VERTICALLY POLARIZED
1 PHOTON
FILTER


$a = \frac{F}{m}$; $a^2 + b^2 = c^2$, $E \propto mc^2$
$(E = m(a^2 + b^2))$
Pr(not passing) $\neq \sin^2\theta$
1 absorbed
$\theta = \frac{\pi}{4} \rightarrow 1$
VERTICALLY POLARIZED
2 PHOTONS

# Many worlds interpretation



# Many worlds interpretation