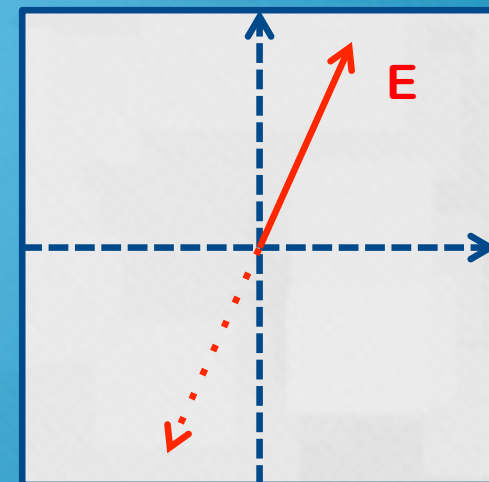
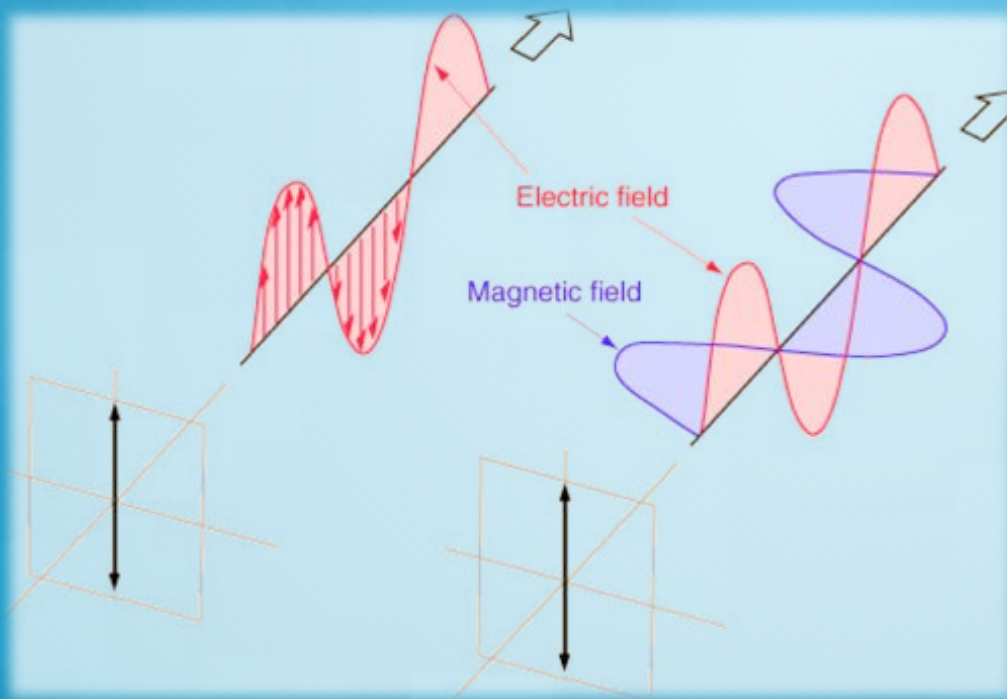




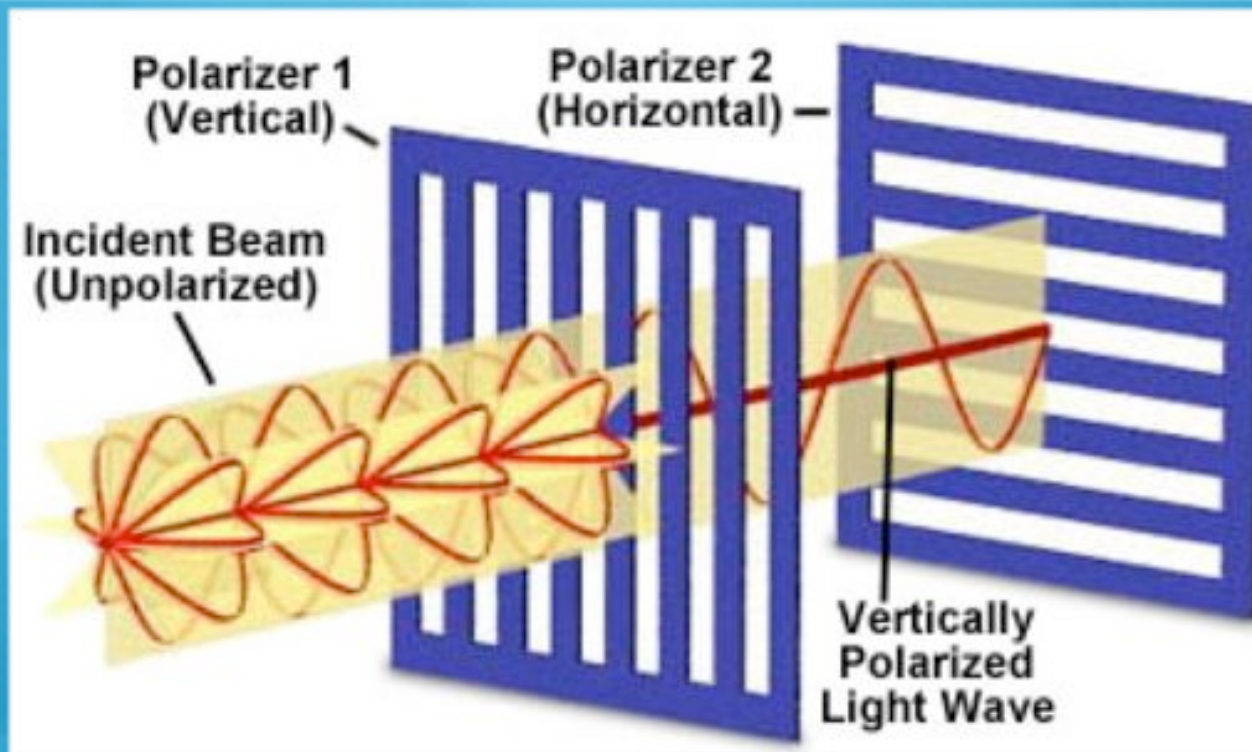
8.04 Wed Feb 6

Polarizers vs. Hyper-Intelligent Monkeys

Polarization Reminder

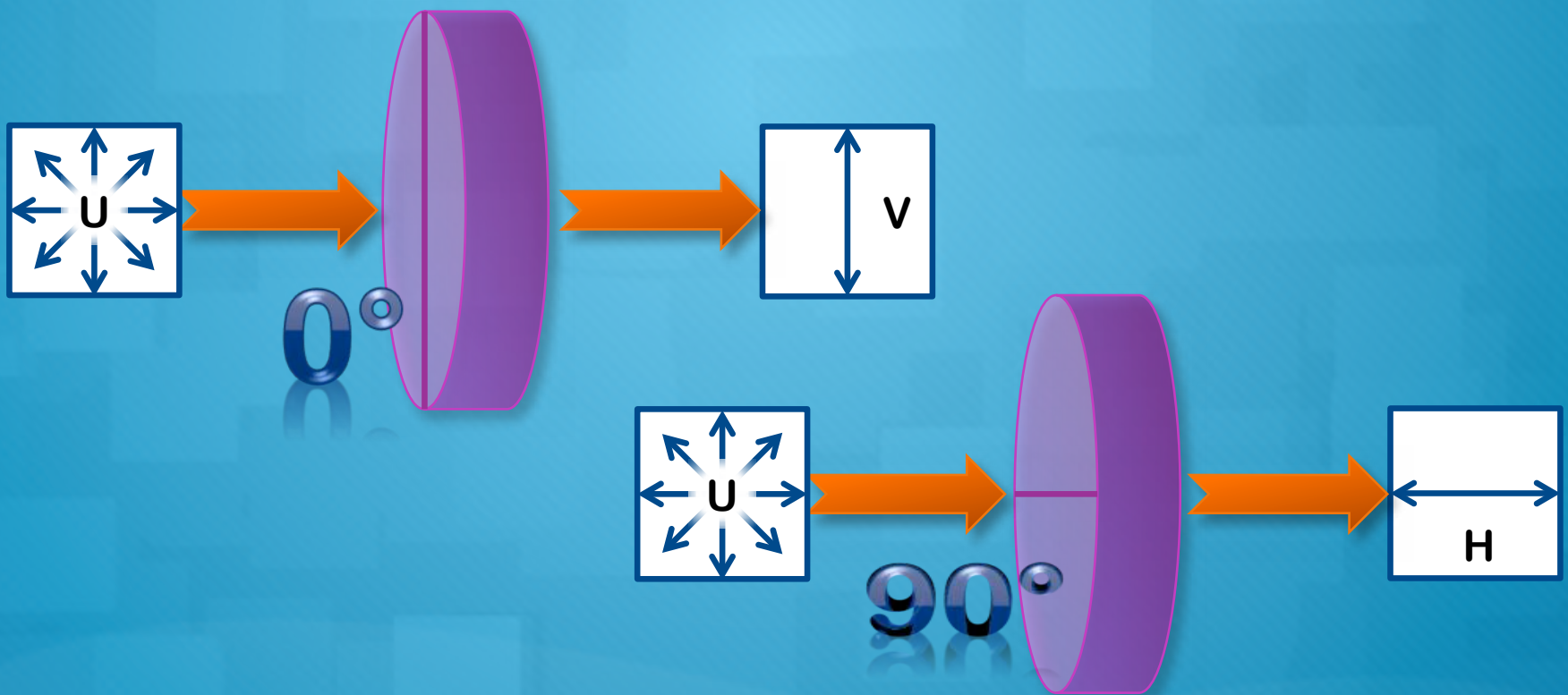


Polarizing Filters

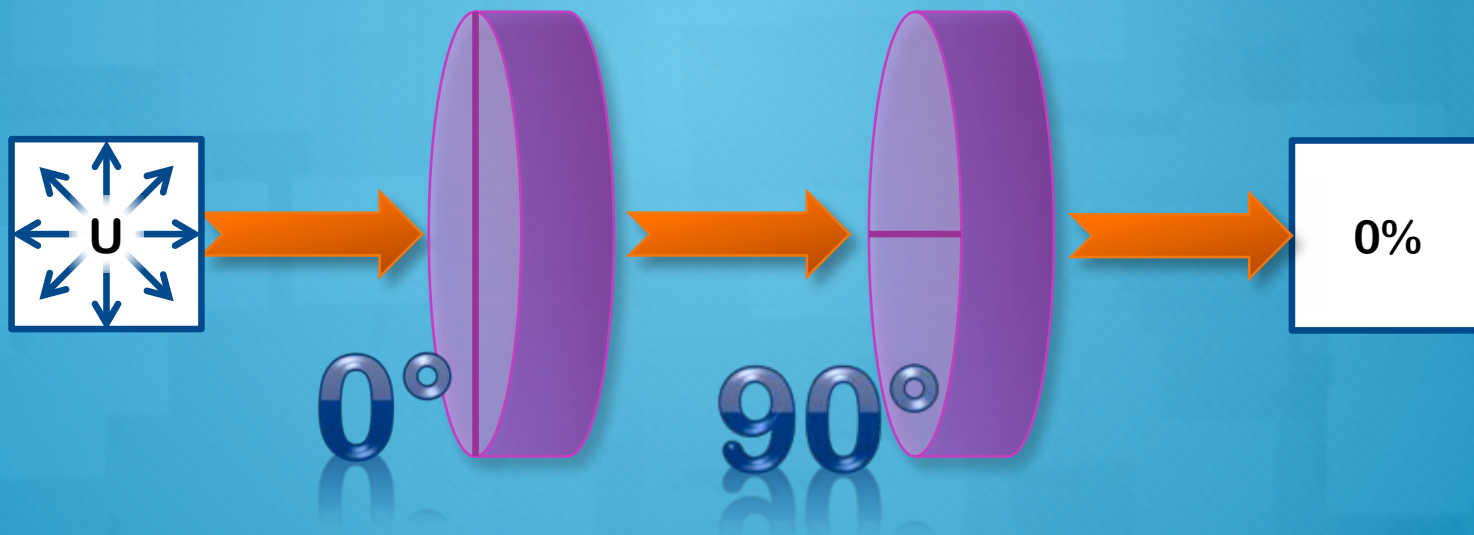


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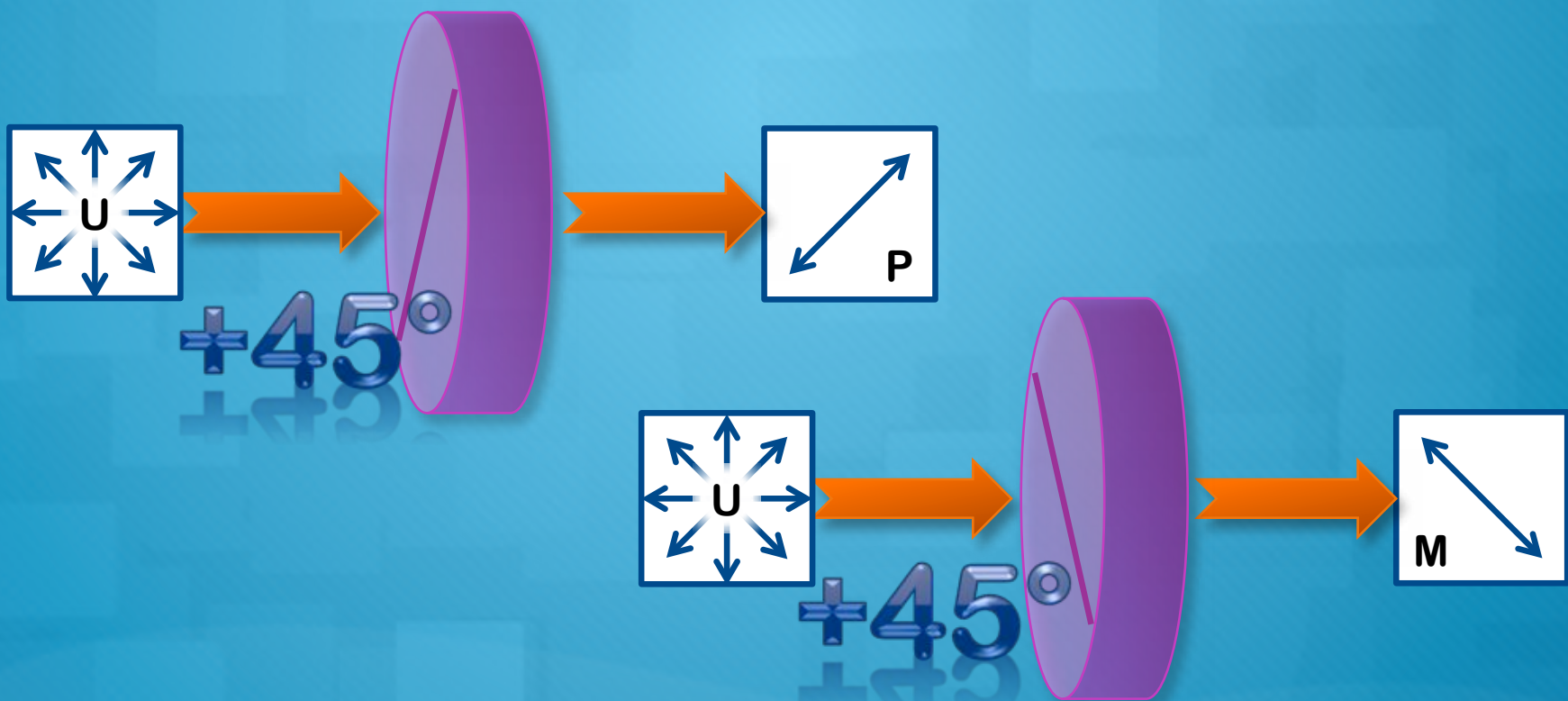
Polarizing Filters, Cartoon



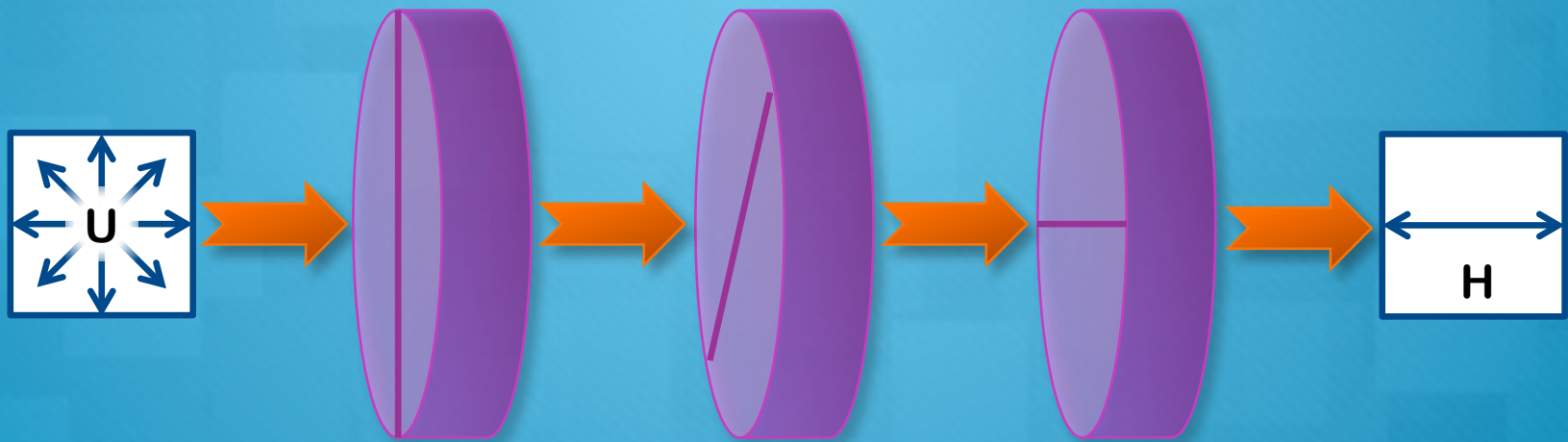
Crossed Polarizers



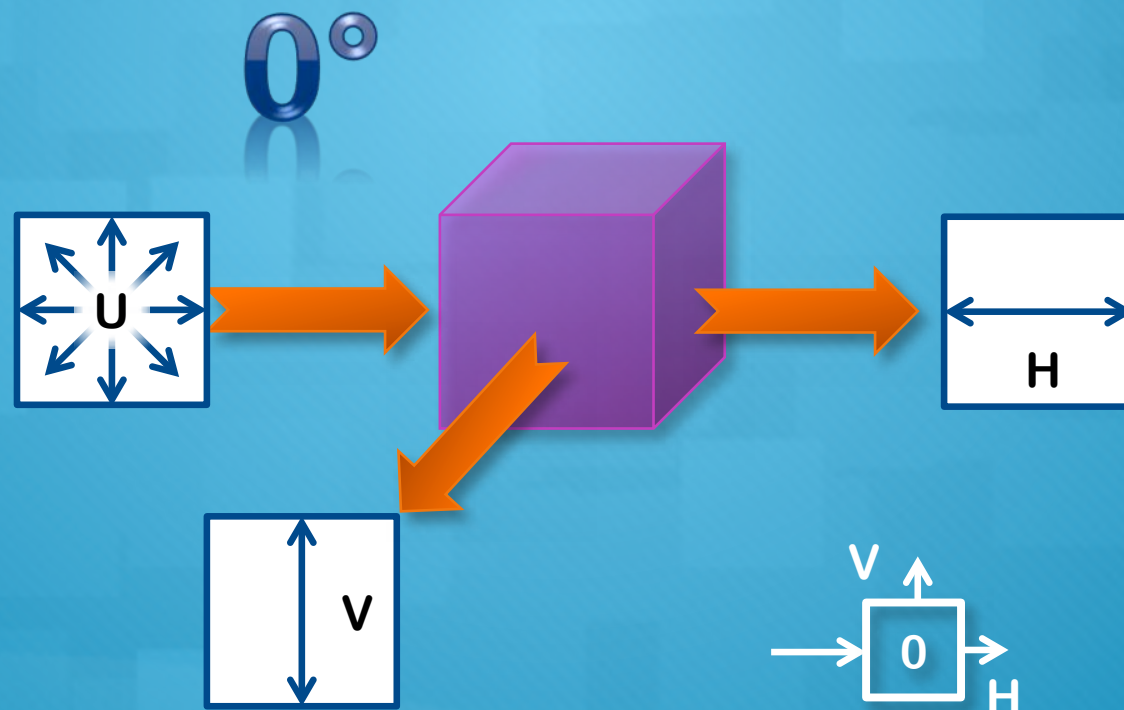
Polarizing Filters, Rotated



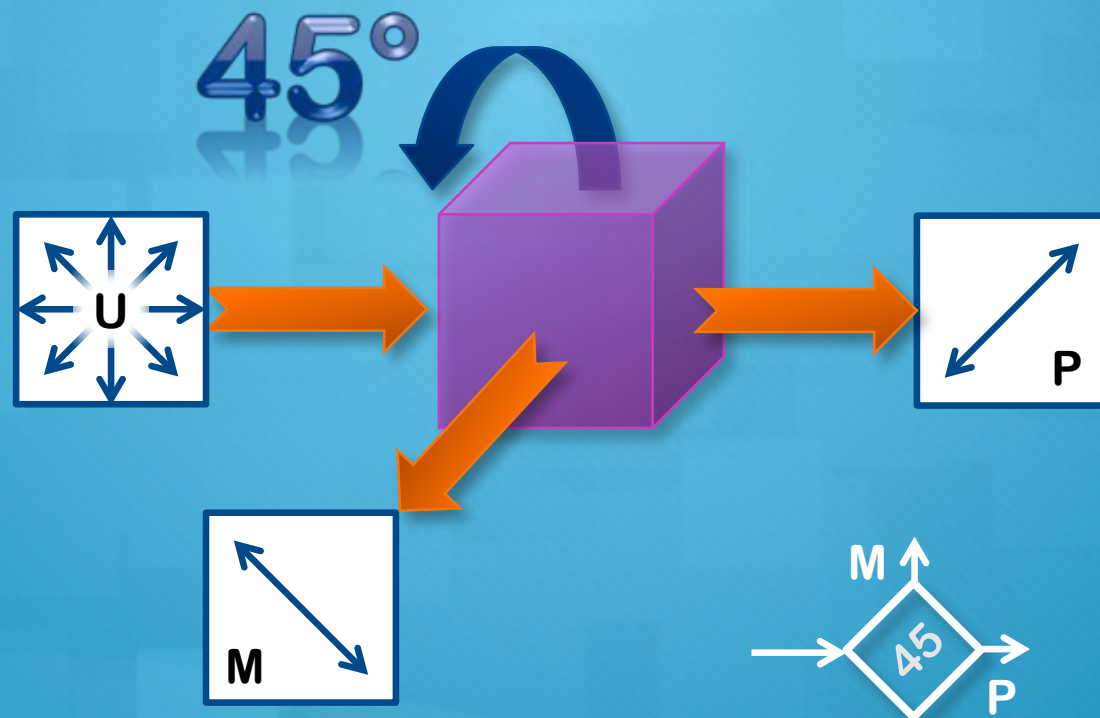
Three Polarizers



Polarizing Beam Splitter

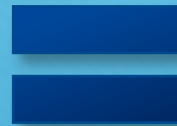
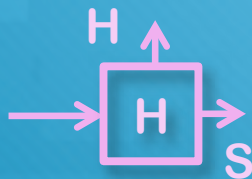
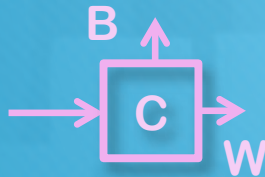


PBS, Rotated

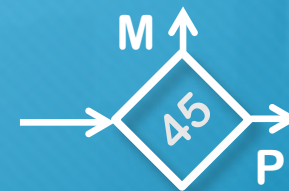
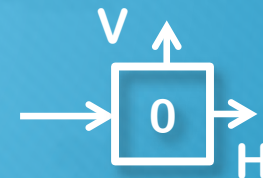


Polarization and Color-Hardness are Analogous!

Hyper-Intelligent Monkeys



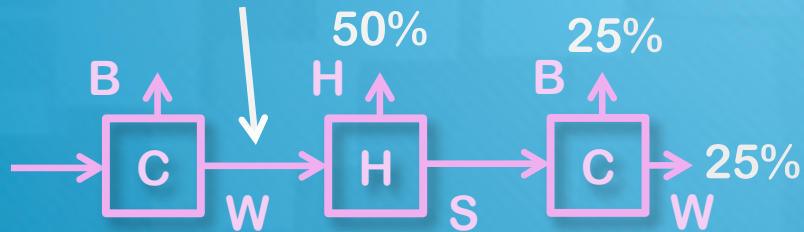
Polarization



An Example from Class

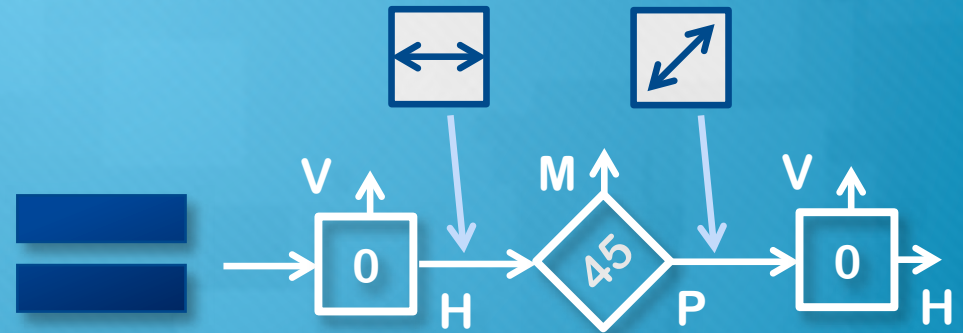
Hyper-Intelligent Monkeys

They are all white here...



Why don't they all come out white?

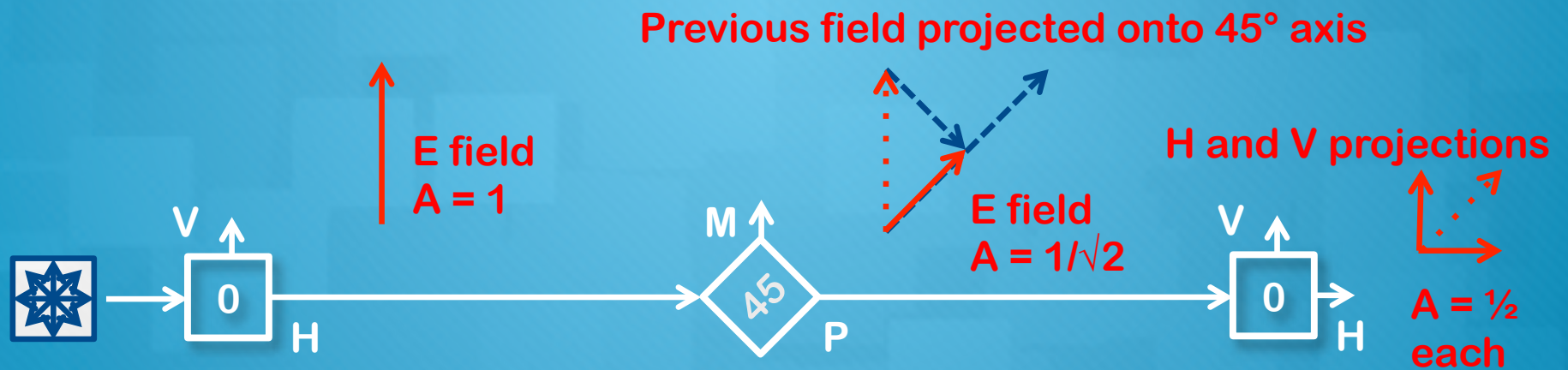
Polarization



What can we learn from polarization?

Three Polarizers, Again

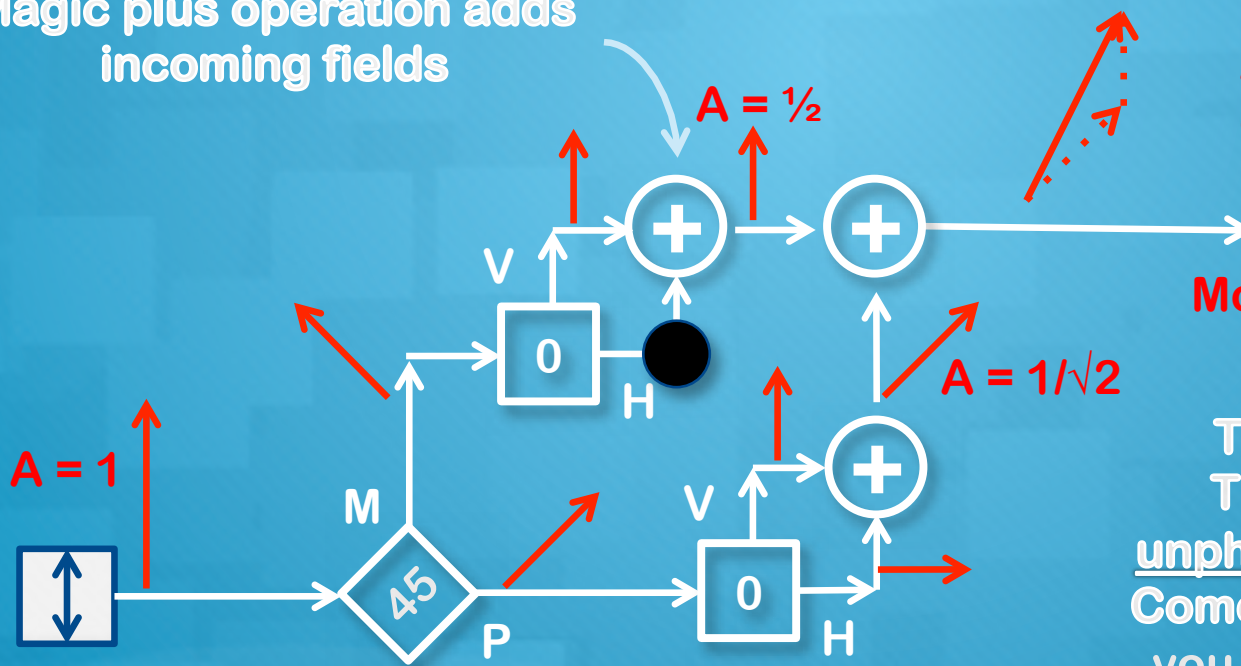
This time with vectors!



With an amplitude of $1/2$, the power in H and V is $1/4$ at the outputs.
So, the polarization analogy lets us compute the right result!

The Extra Credit Problem?

Magic plus operation adds incoming fields



But wait! The Amplitude is now greater than 1!

More power out than in!

The math is right...
There is something unphysical going on here.
Come to my office hours if you want to dig into this.

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8.04 Quantum Physics I
Spring 2013

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