Lab 9 : Utilizing a Polarizer

Presented by

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Objectives ⟶

Students will practice utilizing polarizing filters to enhance the visibility of fluids on clothing.

What you need?

- Cameras
- tripod
- Crime Scene Kits
- External Flash

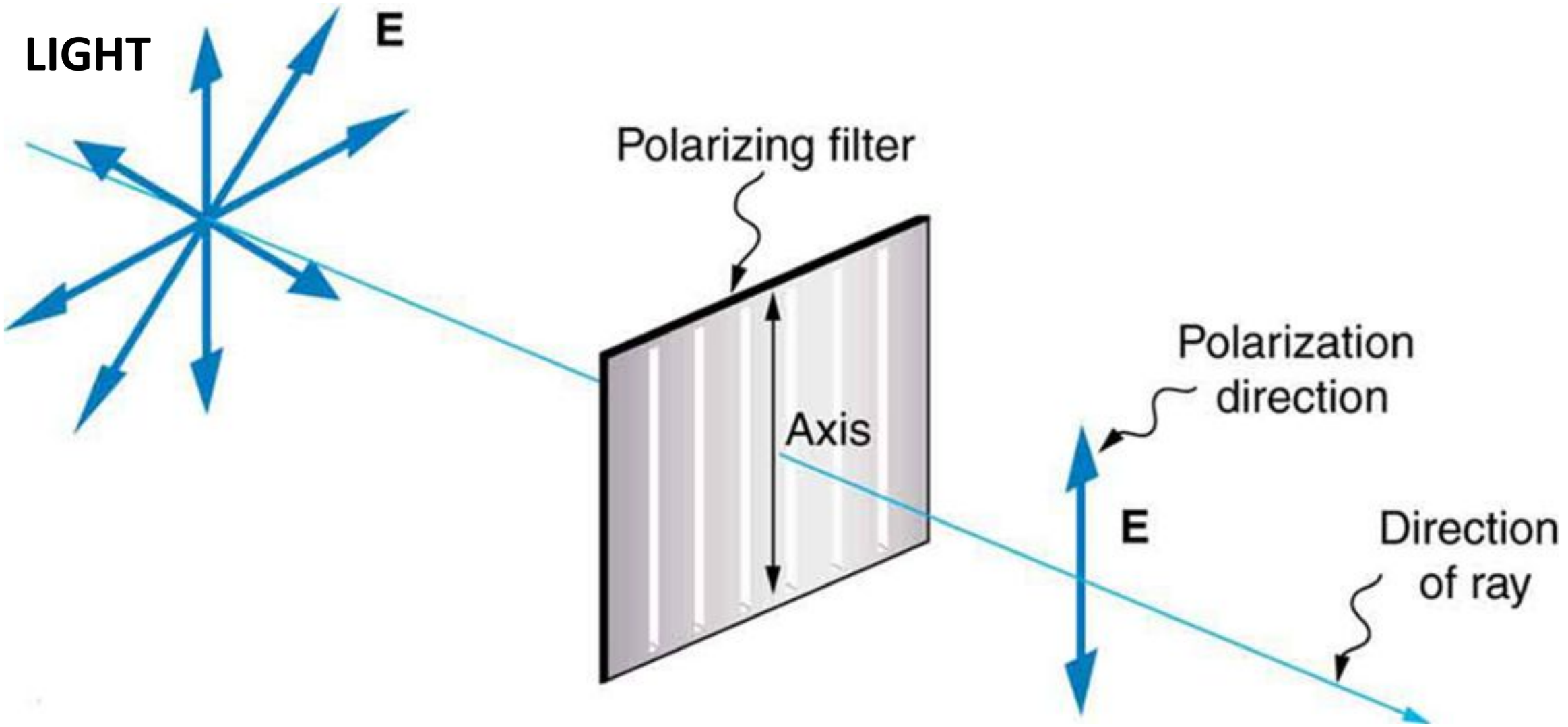
LEARNING OBJECTIVES:

1. UNDERSTAND THE PHYSICS OF LIGHT POLARIZATION AND ITS IMPACT ON CRIME SCENE EVIDENCE.
2. LEARN THE PROPER TECHNIQUE FOR MOUNTING AND ADJUSTING A CIRCULAR POLARIZER (CPL).
3. SUCCESSFULLY USE THE CPL TO ELIMINATE SPECULAR GLARE FROM NON-METALLIC SURFACES (GLASS, VEHICLE PAINT, WET FLOORS, VARNISHED WOOD).
4. SUCCESSFULLY USE THE CPL TO ENHANCE CONTRAST AND VISIBILITY OF EVIDENCE OBSCURED BY REFLECTION OR ENVIRONMENTAL HAZE.

Light is an electromagnetic wave. When light bounces off smooth, non-metallic surfaces at specific angles (often near 30 to 40 degrees), the reflected light becomes **polarized**—this is the blinding glare we see.

The Filter's Role in Evidence Recovery:

- The CPL acts as a controlled viewing window, blocking the specific orientation of the polarized, reflected light.
- By eliminating this glare, the photographer can document the **details underneath** the reflection, such as:
  - Tool marks on a varnished surface.
  - Detail inside a vehicle through a window.
  - Wet floors or sidewalks without distracting hotspots.


LIGHT
E
Polarizing filter
Axis
Polarization direction
E
Direction of ray

KEY CONTROL:

- **The effect of the CPL is manually controlled by rotating the outer ring.**
- **The effect moves from maximum glare reduction (often 90 degrees of rotation) to minimum effect (0 degrees).**

Visual Check (Mandatory): **ALWAYS look through the viewfinder or LCD screen *while* slowly rotating the outer ring to pinpoint the maximum evidence visibility and minimum glare.**

PROCEDURE:

1. **<u>Attach:</u> Gently screw the CPL onto the lens. Use a lens hood to protect the CPL, but ensure the hood does not restrict rotation.**
2. **<u>Angle Check:</u> The maximum polarization effect is dictated by the angle of the light source (sun or flash) relative to the reflective surface.**
3. **<u>Documentation Standard:</u> Take at least one control shot and one treatment shot for every piece of reflective evidence.**

TAKING PICTURES ON GLASS

Aperture: F8–F16

- Latent print photography is a form of macro photography. A small aperture is required to maximize the **Depth of Field (DOF)**, ensuring that all ridge details of the print are critically sharp, even if the glass surface is slightly curved or the lighting creates shadows of varying heights.

ISO ALWAYS 100

Shutter Speed: 1/30 or lower

- Adjust accordingly to achieve the needed exposure. Use a tripod to prevent shake!!

What to do: ⟶

1.

Grab a set of lab gloves. These protects you from leaving more prints.

2.

Start a photo Log.

3.

Photograph the prints on the glass and crime scene evidence through the glass using a polarizing filter and/or external flash. And then document the rest of the scene as normal

Types of Photos

prints on the glass with & without scale.

Normal crime scene photos using the polarizer.

Close ups, and overall photos of evidence using scale and without scale.

Sample pictures

Courtesy: Lillie Taglioli

Example

PHOTOGRAPHY LOG

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– no matter how many pages it takes label it!!

Agency Name: Sunshine Forensics	Incident#: FIVS 210 – 1234
Date: 02-19-2025	Photographer: Shaifer Groalen
Location: HEEP 205, 370 Olsen Drive	Town/Village/City: College Station, TX 77843
Incident Type: Death Investigation	Camera Type: ☐ Film ☑ Digital — Camera: Cannon Rebel T5
Filter: ☐ No ☑ Yes — UV	
Film Type: ☑ Digital	Film Speed: —
Roll#: —	

Focal length

shown in Camera

Exposure Number	Description	150	Lens	Flash	F/Stop	Shutter	Remarks
0001	Scene identifier	1600	55	—	F/11	1/100	Dark
0002	Overall	3200	18	—	F/22	1/60	Bright
0003	Mid-range	400	35	—	F/16	1/250	—
0004	Close-UP	800	55	—	F/4.0	1/5	Bright

– means it was perfect "no comment"

What you Turn in...

All photos taken submitted to

Lab 9 Folder

+

Photo Log

2 Photos to Digital Portfolio