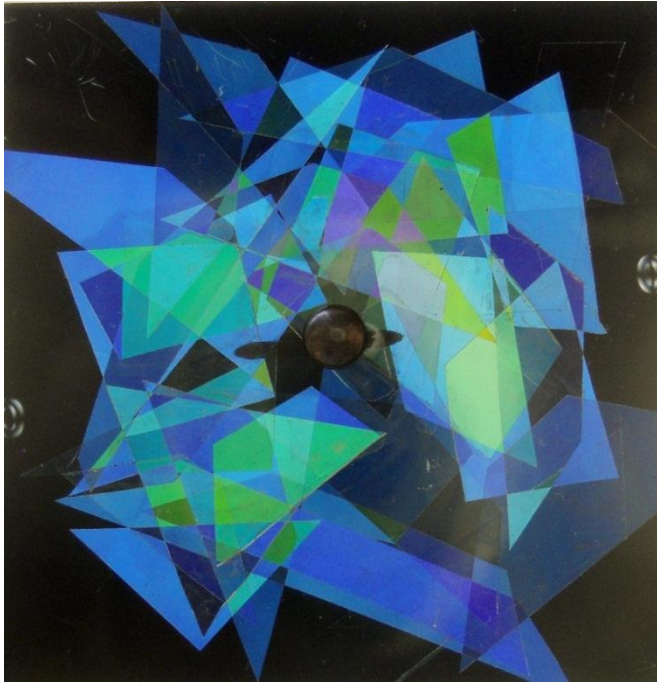


Polage (Polarized Light Collage)

Sami Starkey



A polar collage (polage) uses polarized light filters to create art. A polarizing filter is designed to block all waves of light that are not either horizontal or vertical in oscillation. It's like losing a penny down a grate. If the penny falls parallel through the slots you'll never see it again, but if the penny falls flat on top of the grate, or hits it at an angle and bounces away, the penny is spared to be spent another day. The same is true of light shone through a polarizing filter. Only light waves parallel to the filter get through, and other waves are absorbed. Sunglasses are polarizing filters designed to block horizontal oscillating waves, reducing the glare.

When cellophane tape, a birefringent material, is stuck between two polarizing filters, white light shining through gets filtered into separate colors, thus, the polage. When the filters are perpendicular, only blue and green wavelengths are transmitted and when they are parallel, reds and yellows show.

The "Polage" was invented by Austine Wood Comarow (<http://austine.com/>). She designs

elaborate rotating pieces mounted on massive backlit walls which show alternating scenes and designs.

By comparison, my 2x2, abstract tape-jumble seems rather unimpressive, but I enjoyed piecing it together and seeing the colors change with every new layer of tape I added. I would love to have spent more time tweaking and experimenting with it. I was fascinated when the colors still shone through the perpendicular filters, even though all other light was blocked (left). It turns out that the tape actually bends the light waves, so that certain wavelengths pass through the first filter, are twisted by the tape, and are then able to pass through the second filter as well, while light waves that have managed to run the gauntlet of the first filter but have NOT been bent at a right angle by the tape are then absorbed by the second filter.

This is the first project I've done in the first honors class I have taken at the college level and so far it is challenging me to integrate concepts that I would not have thought of in the same context before. I am an English major, and decidedly science-challenged, but creative projects like the polage actually make science interesting and fun for me.

