

# Soap Film Interference

Using soap bubbles!

## **To do and notice:**

Dip the open end of the container into the soap solution. A soap film (bubble) should form on the top of the container. Notice the colors that begin to appear.

Try holding the soap film container sideways and facing the outside the whole time. You may see lines of color forming at the bottom!

## **What is happening?**

This is called thin film interference and is the same thing that occurs when an oil film appears on the water. It's due to light waves interfering with each other.

## **LIGO connection:**

Light in the beam tubes are aligned so that when they recombine, they destructively interfere with each other. The light is traveling 4km in each tube and reflecting off of the mirrors (optics) and traveling back 4km where the light recombines.

## **Materials:**

Dawn original, water (mixture) or bubble solution, small black container, film canister or condiment container, plate or tray for the soap film

