

Why Soap Bubbles Shimmer Like a Rainbow: Thin-Film Interference

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When you blow a soap bubble, pink, green, and blue hues swirl across its transparent film. After it rains, a little oil spreading over a puddle on the asphalt can leave a rainbow-colored stain. Soapy water and oil are almost colorless to begin with, so why do such brilliant colors appear? The secret lies not in paint or pigment but in the nature of light. When light reflected from the top surface and the bottom surface of a very thin film overlaps, some colors grow stronger and others grow weaker. This phenomenon is called 'Thin-Film Interference.' It refers to what happens when a film is so t