

At Light Speed

The Birth of Interferometry

Arago had more ideas by himself than a full generation.¹

Léon Foucault (1853)

Open your eyes. The world goes from dark to light as reality presents itself to you in a flash of awareness. Distant objects touch your eyes as light rays strike your retinas and launch a cascade of neural computing that constructs your perceived reality in your mind. It would seem like magic if you weren't so used to it. Light is one of the most powerful manifestations of the forces of physics because it tells us about our reality. Light from the early years of our universe fills space with a cosmic background radiation that tells us of the Big Bang. Light from distant galaxies tells us of the subsequent history of an expanding universe. Light observed from the rotating belts of stars in nearby galaxies tells us of the existence of dark matter, and light from the eclipses of the moons of Jupiter told us (through Ole Rømer and Christiaan Huygens) that light had a finite speed.

Yet for all its power to advance science and its immediacy in our daily lives, light has presented an enigma to virtually every generation of scientists who have tried to grapple with its essence.