



Sir Isaac Newton

1642-1727

Sir Isaac Newton was an English physicist, mathematician, astronomer, natural philosopher, alchemist and theologian. He is widely regarded as the greatest scientist of his era. His work in the areas of light, color, and optics laid the foundation for the development of all imaging systems which are based on capturing radiation in the visible portion of the electromagnetic spectrum.

In a famous experiment Newton discovered that passing white light through a prism results in its dispersion into a spectrum of colors, and that a lens and a second prism could recombine the multicolored spectrum back into white light. Newton concluded that such dispersion would degrade the performance of any imaging system based on refraction. To mitigate this degradation in astronomical telescopes, he consequently invented a new and superior class of instrument which used reflection instead of refraction. It was Newton's reflecting telescope that finally brought him to the attention of the scientific community and in 1672 he was made a Fellow of the Royal Society.

Newton's work on light and color was published in 1704 in the *Opticks*. In Newton's words, the purpose of the *Opticks* was "not to explain the Properties of Light by Hypotheses, but to propose and prove them by Reason and Experiments." The *Opticks* became the model for experimental physics in the 18th century.