

# Catching Cosmic Light with the Galileoscope

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Created for the 2009 International Year of Astronomy, the Galileoscope solved a long-standing problem: the lack of high quality, low cost telescope kits suitable for both optics education and celestial observation. Through an effort managed entirely by the volunteers who have authored this article almost 240 000 Galileoscope kits have now been distributed in 106 countries across the globe, for use in science teaching and public outreach. The Galileoscope outreach programme for the 2015 International Year of Light is now in full swing, giving tens of thousands of students, teachers and parents their first telescopic look at the Moon's craters and Saturn's rings.

## Galileoscope and the International Year of Light

The Galileoscope has been named part of the Cosmic Light cornerstone project of the 2015 International Year of Light (IYL); a project coordinated by the International Astronomical Union (IAU)<sup>1,2,3</sup>. Plenty of these IYL-branded kits remain available for direct purchase and for donation through the Telescopes4Teachers programme<sup>4,5</sup>.

Since its inception, the Galileoscope project has facilitated gifts to teachers and students who might otherwise not have access to a telescope<sup>6</sup>. During the 2009 International Year of Astronomy (IYA), some 7000 kits were donated and

distributed to educators throughout Africa and the Middle East<sup>7</sup>. That same year, Jean and Ric Edelman, the founders of Edelman Financial Services, donated 15 000 Galileoscopes to science teachers in the USA<sup>8</sup>.

For the IYL2015, the Edelmanns have made another generous contribution to Telescopes4Teachers to support the distribution of 10 000 more Galileoscopes to science educators<sup>9</sup>. Ric Edelman promoted their availability via his biweekly radio programme, *The Truth About Money*, in late May, and all 10 000 kits were claimed within four days by teachers in 48 states of the USA, the District of Columbia, Puerto Rico, and Guam<sup>10</sup>.

## What the Galileoscope has to offer

In the process of assembling the Galileoscope, students explore fundamental optical concepts such as how lenses form images. Then, with their completed 50-millimetre diameter, 25- to 50-power, achromatic refractor — which attaches to any photo tripod — they can enjoy sharp views of lunar craters and mountains, Jupiter's moons, Saturn's rings, the phases of Venus, and other bright celestial objects.

The kit is augmented with free optics education and observing activities. These well-tested activities can be used by classroom and after-school teachers, as well as informal educators and outreach



Figure 1. Assembled Galileoscope. Credit: Joson Images/Galileoscope, LLC



Figure 2. Galileoscope kit. Credit: Joson Images/Galileoscope, LLC

specialists, to provide a rigorous approach to teaching science and the scientific method.

The Galileoscope has been featured in professional development workshops for educators worldwide. Among the organisations routinely incorporating the kit into their teacher training are the U.S. National Optical Astronomy Observatory (NOAO), the Astronomical Society of the Pacific (ASP), and the Galileo Teacher Training Program (GTTT). NOAO has established a programme of workshops for educators that can be carried out virtually anywhere — including online — at minimal cost to the host institution<sup>11</sup>.

At the IAU General Assembly in Honolulu in August, more than 400 local Hawaiian students visited the exhibit hall to meet scientists and engage in hands-on astronomy activities. As they left, each was given a Galileoscope kit by the event's sponsor, Associated Universities, Inc. As seen in Figure 3, the children were all smiles!

## Notes

<sup>1</sup> More on the Cosmic Light cornerstone project: <http://www.light2015.org/Home/CosmicLight.html>



**Figure 3.** Children celebrating receipt of Galileoscopes at the IAU General Assembly in Honolulu, Hawaii, in August 2015. Credit: Coty Tatge, University of Wyoming

<sup>2</sup> More on the International Year of Light: <http://www.light2015.org/Home.html>

<sup>3</sup> More on the International Astronomical Union: <http://www.iau.org/iyl/>

<sup>4</sup> IYL-branded kits available for direct purchase: <http://galileoscope.org/order-kits/>

<sup>5</sup> IYL-branded kits available for donation through the Telescopes4Teachers programme: <http://galileoscope.org/support-schools/>

<sup>6</sup> More information on the Galileoscope project: <http://galileoscope.org>

<sup>7</sup> More information on the 2009 International Year of Astronomy: <http://astronomy2009.org/>

<sup>8</sup> More information on Edelman Financial Services: <http://www.edelmanfinancial.com/>

<sup>9</sup> Press release on the Edelmanns' 2015 donation: <http://galileoscope.org/celestial-wonders-await-thousands-of-schoolchildren/>

<sup>10</sup> Ric Edelman's biweekly radio programme The Truth About Money: <http://www.edelmanfinancial.com/radio>

<sup>11</sup> Programme of workshops for educators developed by NOAO: <http://galileoscope.org/workshops/>



**Figure 4.** Jean and Ric Edelman, philanthropists and founders of Edelman Financial Services, who donated 15 000 Galileoscopes to science teachers in the USA in 2009 and a further 10 000 in 2015. Credit: Edelman Financial Services

## Biographies

**Rick Fienberg** is Vice-President and one of the founders of Galileoscope, LLC, which supports and promotes the manufacturing and distribution of Galileoscope kits. Fienberg is also Press Officer and Director of Communications at the American Astronomical Society.

**Doug Arion** is President and one of the founders of Galileoscope, LLC, which supports and promotes the manufacturing and distribution of Galileoscope kits. Arion is also Professor of Physics and Astronomy and Professor of Entrepreneurship at Carthage College, USA.