

History of the Fundamentals of Optical Coatings

Angus Macleod

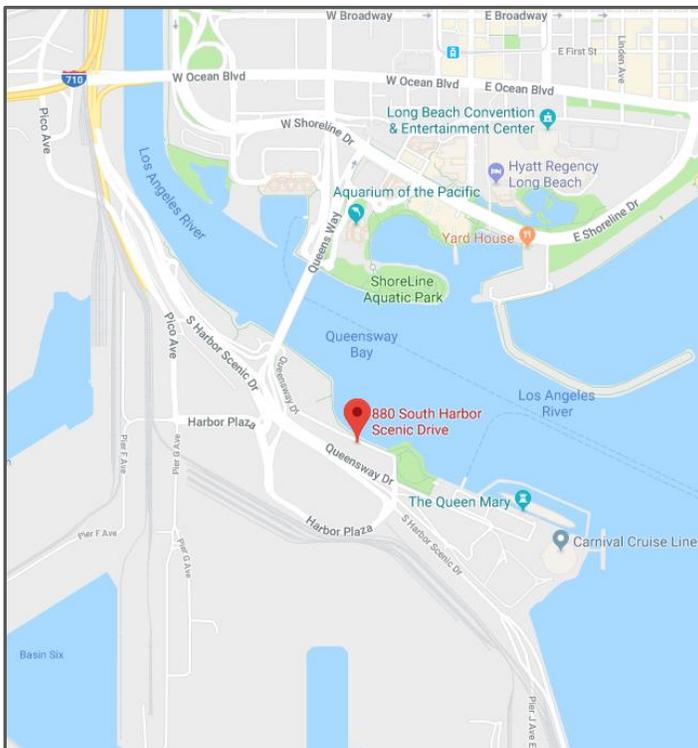
Thin Film Center, Tucson, Arizona angus@thinfilmcenter.com



Nowadays the calculation of the properties of an optical coating is a quite easy matter. We open a computer program, decide on the wavelength, enter the sequence of thicknesses and refractive indices and launch the program. Apart from the computer program, all we need are the three quantities, thickness, refractive index and wavelength. Simple. However, it took us roughly two thousand years to develop the necessary concepts and the story is an integral part of the history of optics itself. Thickness is the simplest of the three quantities. The first manufactured thin films were probably beaten gold and no doubt the skilled workers who constructed these very thin layers were well aware of the thicknesses they achieved. Refractive index and

wavelength took much longer and represent our main thrust. We start with the early Greeks in Alexandria, move to the Islamic scientists who built on their findings, and follow the trail to Europe where the ideas of refractive index, wavelength and interference were finally developed as we know them today. We illustrate the story with some of the names of individuals whom we credit with important contributions, but we must not forget that scientific and technological advances are group activities in a supporting community.

About our speaker: Angus Macleod has more than 50 years of experience in optical coatings, both in manufacturing and in research. He was born and educated in Scotland, and worked both in industry and academia in Great Britain before joining the University of Arizona as Professor of Optical Sciences in 1979. Since 1995, he has been full time with Thin Film Center, Inc., a software, training and consulting company in Tucson that he co-founded in 1986. He is the author of *Thin Film Optical Filters*, 5th edition (CRC Press, 2017).



Reception: 6:00
Dinner: 7:00
Presentation: 8:00

Buffet Meal: \$40 (\$45 after Feb 4)
\$10 for Student Members (\$20 after Feb 4)

The Reef Restaurant
880 S. Harbor Scenic Dr.
Long Beach, CA 90802

On-line Registration: www.oss.org

Contact: Don Silbermann, OSSC Arrangements Chair
Events@oss.org (949) 636-6170

Please RSVP by February 4, 2018