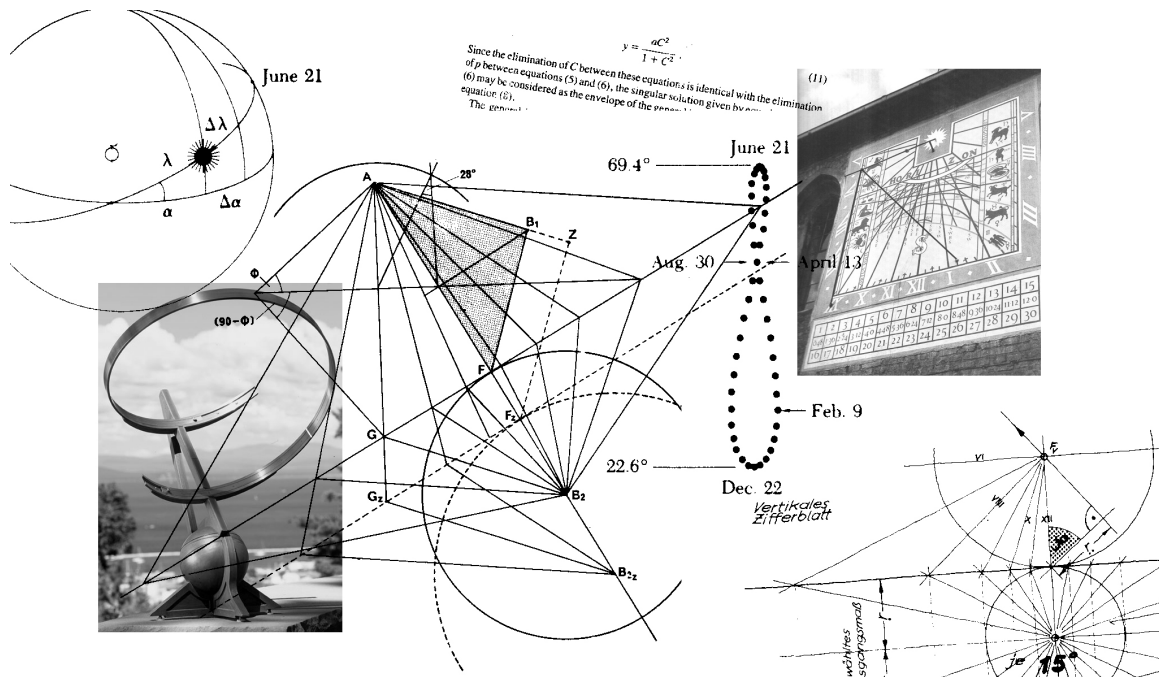


# Sundials: Mathematics as an Art Form

The 2003 Anderson Lecture, given by Ron Doerfler

Time: 6:30-7:30pm



Can you resist a sundial? Interesting dials beckon everyone, and while the garden varieties so often disappoint, the ones designed with razor precision, the ones that exhibit mathematical and artistic creativity, are ever fascinating. Sundials, the sublime ones, are sculptures of mathematical theorems, and the shadows trace out mathematical demonstrations every day. They embody a mix of the technical and the artistic, the ancient and the new, the timeless and the timely. This talk will approach sundials from a mathematical point of view, describing the basis and tools for designing precision dials for those with a mathematics interest and background.

Sundials exist in a dizzying variety of designs—equinoctial, ring, polar, analemmatic, polyhedral, azimuth, vertical declining, armillary, card, bifilar, and so on—in many sizes. In addition to displaying the time of day (and of course a motto!), the more interesting ones include such features as shadow traces for particular days of the year, the sun's declination, the times of sunrise and sunset, unequal hours, times in other cities, and corrections for civil time.

Precise, elegant dials offer a mix of the technical and artistic that makes them so appealing. Their designs involve areas of mathematics that include conic sections, geometrical constructions, analytical geometry, trigonometry, and often calculus. Those with a mathematical bent can create breathtakingly elegant devices. This talk is an introduction to a very creative and engaging field.

*Ron Doerfler completed a B.S. in Mathematics and Physics from Illinois College, and an M.S. and four years of doctoral work in Experimental Nuclear Physics at the University of Illinois in Urbana-Champaign. His interests include sundials, astrolabes and stereo photography. He is currently a Member of Technical Staff and a Messaging System Architect at Lucent Technologies in Naperville, Illinois, where he lives with his wife and three children.*