THE SPITZ 4A PLANETARIUM PROJECTOR

By Charles Miller, Director, Iowa Space Science Center Initiative, Iowa City, Iowa

Editor's Note: this article is reprinted here with permission of the author, Charles Miller. The original version of th1s article was published on the Iowa Space Science Center website. [1] *In this article, the author describes the technical details of the Spitz Model 4A planetarium projector. The projector a Brazosport Planetarium is a similar model.*

Since this article was published, the Iowa Space Science Center has been closed by its owner, the University of Iowa, and this article is no longer available on its website.

This article was previously published this publication in its October 2011 issue.[2]

The Iowa Space Science Center possesses a Spitz Model A4 planetarium projector, the main projection system shown at right. The control panels and electronics, not shown, occupy a desk-sized area. The projector stands eight feet tall.

The projector's inventor, Armand Spitz, designed it to be a viable, but affordable, alternative to the German-made Zeiss projectors, which only large cities could afford.

The projector consists of an 18-inch "star ball" (top) which projects approximately 2000 stars of the night sky using a xenon arc lamp to render a realistic star color-temperature. Below the horizontal axis is the "planet cage" assembly responsible for projecting the five naked-eye planets (Mercury, Venus, Mars, Jupiter, and Saturn) as well as the sun and our moon. Each planet projector employs an individual analog computer that models the relative position of the sun, earth, and planet so that the projected planet motions, such as retrograde motion and changes in orbital inclination, are accurately portrayed. The relative positions and motions of the planets are also computed by this system. The moon's phase is also properly shown.

In addition to the independent planet motions, four major star-field motions are reproduced:

- Daily motion
- Annual motion
- Latitude, as determined by the desired observer's position on earth
- Precession of the polar axis.

In addition, the A4 model provides for azimuthal rotation, allowing the field to be turned for the convenience of presenting a particular region of the sky to the audience.

The A4 projector is designed to operate at the center of a 24-30 foot diameter hemispheric projection dome, typical of university-size planetariums.

Left: *Analog computer for tracking the motion of Mars.*

Right: *The Spitz 4A Planetarium Projector*

---

[1] Charles Miller. "Spitz Model A4 planetarium projector." Iowa City**:** The Iowa Space Science Center, Inc.., 22 September 2011. Accessed 01 October 2011. No longer available.

[2] Charles Miller. "The Spitz 4A Planetarium Projector." Angleton**:** *Chapter News*, October 2011, p.5. Reprinted by permission. <http://txmn.org/cradle/files/2011/10/TMN-COT_Newsletter_October_2011.pdf>