Scientists have identified the closest known flyby of a star to our solar system: a dim star that passed through the solar system's distant cloud of comets 70,000 years ago.

Lead author Eric Mamajek, associate professor of physics and astronomy, and his collaborators analyzed the velocity and trajectory of a low-mass star system nicknamed “Scholz’s star” in a paper published in Astrophysical Journal Letters. The star's trajectory suggests that it passed roughly 0.8 light-years, or five trillion miles, away from the solar system. That may not sound like a close call, but astronomically, it is. Our closest neighbor star, Proxima Centauri, is 4.2 light-years away.

To work out the trajectory of Scholz’s star, astronomers from the United States, Europe, Chile, and South Africa used measurements taken with large telescopes in South Africa and Chile. From the information they pieced together, they figured out that the star was moving away from the solar system and traced it back in time to its position 70,000 years ago, when their models indicated it came closest to our sun.

The star is now a small, dim red dwarf in the constellation of Monoceros, about 20 light-years away.

—Leonor Sierra

DROPPING BY: An artist’s conception of Scholz’s star and its brown dwarf companion during its flyby of the solar system 70,000 years ago.
Dangers Found in E-Cigarettes

While a debate goes on about whether electronic cigarettes help people quit smoking, new research suggests that e-cigarettes are likely a toxic replacement for tobacco.

According to the study led by Irfan Rahman, professor of environmental medicine, and published in the journal PLOS One, emissions from e-cigarette aerosols and flavorings damage lung cells by creating harmful free radicals and inflammation in lung tissue. The investigation suggests that harm begins when the e-cigarette’s heating element is activated, turning a liquid solution into an aerosol that mimics cigarette smoke. The inhaled vapors contain heavy metals and other possible carcinogens in the form of nanoparticles.

“Several leading medical groups, organizations, and scientists are concerned about the lack of restrictions and regulations for e-cigarettes,” says Rahman, adding that his group’s research affirms that e-cigarettes pose significant health risks and should be investigated further.

The biggest concern is for users under age 18. E-liquid flavorings marketed to kids and teens include fruit, dessert, and candy, and are widely available in convenience stores, gas stations, and online. Sales in the United States are estimated to exceed $1 billion.

—Leslie Orr

Dangers Found in E-Cigarettes

SMOKE SIGNAL: New research suggests that e-cigarettes are likely a toxic replacement for tobacco.