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Exploring Strange New Worlds: “Star Trek” Planet Vulcan Found
New planet could be Spock’s home world, astronomers say

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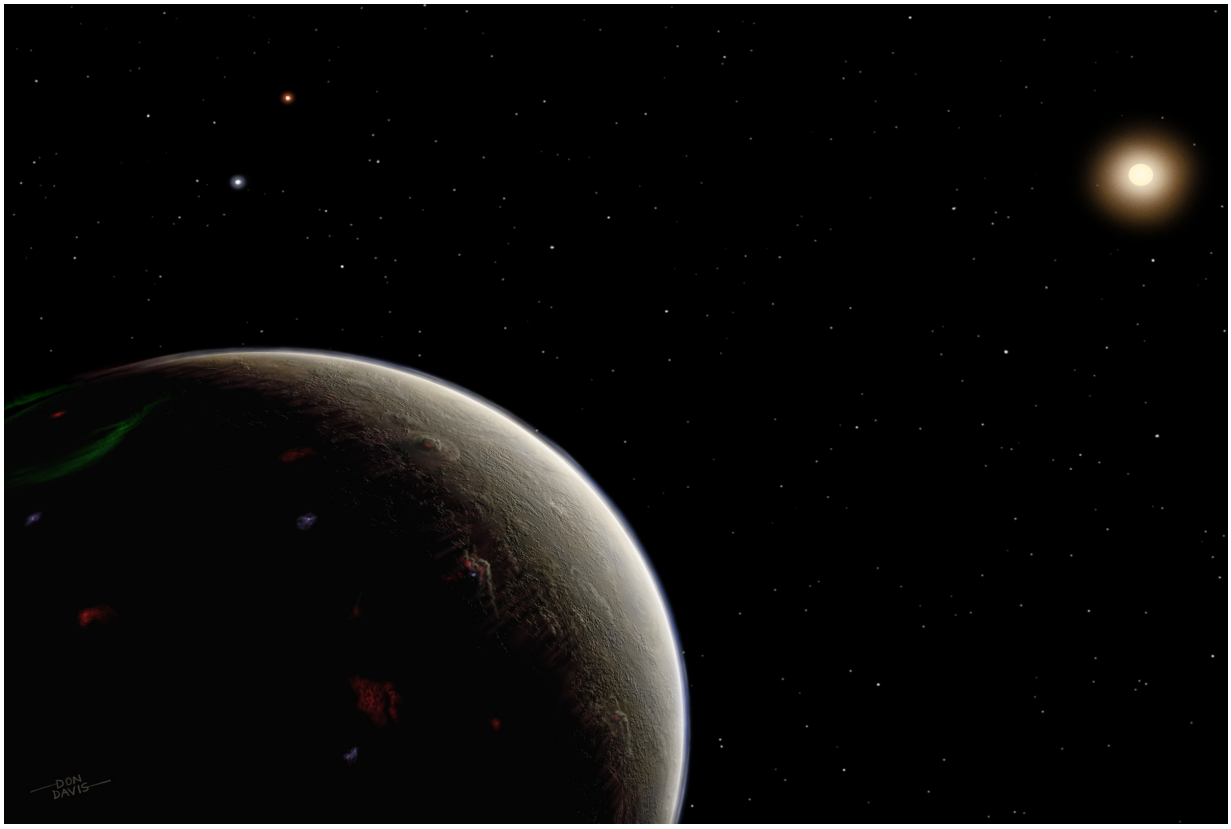
Among the TV series Star Trek’s many charms are its rich universe of characters and planets. Now, the Dharma Planet Survey, in a new study led by University of Florida (UF) astronomers Jian Ge and Bo Ma and Tennessee State University (TSU) astronomers Matthew Muterspaugh and Gregory Henry, has shown that science fiction has come a little closer to reality.

The Dharma Planet Survey (DPS), a collaborative project between the University of Florida and Tennessee State University, has discovered what may be Star Trek's famed planet Vulcan. “The new planet is a “super-Earth” orbiting the star HD 26965, which is only 16 light years from Earth, making it the closest super-Earth orbiting another Sun-like star," says UF's Jian Ge. "The planet is roughly twice the size of Earth and orbits its star with a 42-day period just inside the star's optimal habitable zone." The discovery was made using the Dharma Endowment Foundation Telescope (DEFT) and two of TSU's robotic telescopes, located on two separate mountains in southern Arizona. The planet is the first “super-Earth” detected by the Dharma Survey.



Artist's concept of planet Vulcan, home world of Science Officer Mr. Spock of the Starship Enterprise. Vulcan has been discovered orbiting the star HD 26965 only 16 light years from Earth by University of Florida and Tennessee State University astronomers using robotic telescopes located in southern Arizona. Credit: Don Davis

"The orange-tinted HD 26965 is somewhat cooler and less massive than our Sun, but is approximately the same age as our Sun and has a 10-year starspot cycle nearly identical to the Sun's 11-year sunspot cycle," says TSU's Matt Muterspaugh, who helped to commission the Dharma spectrograph on the TSU 2 meter automatic spectroscopic telescope. "Therefore," he adds, "HD 26965 may be an ideal host star for an advanced civilization."

"Star Trek fans may know the star HD 26965 by its alternative moniker 40 Eridani A," says TSU's Greg Henry, who used TSU's automated observatory to collect precise brightness measurements of the star needed to confirm the presence of the planet. "Vulcan was connected to 40 Eridani A in the publications "Star Trek 2" by James Blish and "Star Trek Maps" by Jeff Maynard," explains Henry. In a letter published in the periodical "Sky and Telescope" in July 1991, Gene Roddenberry, the creator of Star Trek, along with astronomers Sallie Baliunas, Robert Donahue, and George Nassiopoulos of the Harvard-Smithsonian Center for Astrophysics, confirmed the identification of 40 Eridani A as Vulcan's sun. The 40 Eridani star system is composed of three stars. Vulcan orbits the primary star, and the two companion stars "would gleam brilliantly in the Vulcan sky," wrote Roddenberry et al. in their 1991 letter.

"Vulcan is the home planet of Science Officer Mr. Spock," says Henry. "Spock served on the starship Enterprise, whose mission was to seek out strange new worlds, a mission shared by Dharma Planet Survey."

"This star can be seen with the naked eye, unlike the host stars of most of the known planets discovered to date. Now anyone can see 40 Eridani A on a clear night and be proud to point out Spock's home," says Bo Ma, a UF Postdoc on the team and the first author of the paper just published in the journal Monthly Notices of the Royal Astronomical Society.

"This discovery demonstrates that dedicated, robotic telescopes conducting high-cadence, high precision observations will continue to play a key role in the discovery of more super-Earths and even Earth-like planets around nearby stars," says Ge.

Ge thanks Dharma Foundation's Mr. Mickey Singer for his continuous support of the Dharma Planet Survey. Muterspaugh and Henry acknowledge long term support from NASA, National Science Foundation (NSF), Tennessee State University, and the State of Tennessee through its Centers of Excellence program. They also thank Louis Boyd, Founder and Director of Fairborn Observatory, for his decades of support of the TSU robotic telescopes.

Journal Link: https://schwab.tsuniv.edu/papers/mnras/hd26965/reprint.pdf