

explain how the space microbe stores energy. The movie summarizes the concept with a quip from Grace, played by Ryan Gosling, who says that the microbes “toot to scoot.” The film skims over many of the other science plot points that come up later in the book.

Weir crunched more numbers for the film. Much of the movie takes place on a spaceship, and the directors wanted realistic readouts on the ship’s screens. Weir calculated the distance of the ship to its destinations, the current velocity with respect to the target star, and other values depending on where a scene occurred. Weir says that a physicist on set would at times double-check his math and that NASA engineers reviewed cuts of the film. “They told us little things like, ‘Yeah, this is wrong, but it doesn’t matter.’ Or ‘This is wrong, and it does matter.’”

Having explicit math featured in his stories also opens it up for critique. One criticism, pointed out by readers online, is about the atmospheric pressure of the exoplanet Erid. In the book, Erid is said to have an air pressure 29 times as high as that of Grace’s spaceship. That is incorrect. What Weir meant is that Erid’s atmospheric pressure is 29 times as high as Earth’s at sea level—the spaceship’s internal air pressure is kept at 0.4 atmospheres. “It’s not perfect. I make mistakes,” Weir says. Changing the book in subsequent printings is harder than a simple find and replace, says Weir. “We just don’t bother making those changes.”

Weir acknowledges that the scientific scenarios he investigates aren’t novel in and of themselves. “I’m not even the first person to strand someone on Mars in fiction. I just like to do things my own way: meticulously, nerdishly, scientifically.” **PT**

# Eiffel Tower to gain symmetry with addition of women’s names

Women will join men in being honored on the Paris icon.

By **Toni Feder**



▲ Women scientists’ names are to be inscribed on the Eiffel Tower, as shown in this mock-up. They will be added above the names of men, who had to have made their scientific contributions in the century preceding the tower’s completion. The names face outward just below the first floor of the tower. (Image courtesy of Agence Pierre-Antoine Gatier, 2025.)

The names of 72 women scientists, mathematicians, and engineers are set to be inscribed on the Eiffel Tower, Paris Mayor Anne Hidalgo announced on 26 January. They will join an equal number of men's names, which have been there since the tower was completed in 1889. Gustave Eiffel, the tower's architect and engineer, wanted the tower to be a monument to French scientific prowess.

The inspiration for the gender parity came from student and Eiffel Tower tour guide Benjamin Rigaud. In August 2021, he says, a tourist asked him whether Marie Curie's name was inscribed on the tower. In that moment, says Rigaud, he realized that there were no women represented among the inscribed names. "Everyone should know that many

women have contributed to science," he says.

Rigaud was joined in his efforts to add women's names to the Eiffel Tower by student organizations and especially by Femmes & Sciences, a French association that promotes women in science, which lobbied the mayor's office. "We carried the project over the past five years and brought it to success," says Femmes & Sciences vice president Isabelle Vauglin. The mayor commissioned the association to select which scientists to honor.

The women's names are to be inscribed directly above the men's in the same 65-centimeter-tall gilded lettering, as shown in the rendering. Because of limited space, names cannot exceed 12 letters. As with the men's, that means last names only. The honorees in-

clude mathematician Sophie Germain (1776–1831), chemist Irène Joliot-Curie (1897–1956), and physicist Cécile DeWitt-Morette (1922–2017). Most are French, but a few, such as Rosalind Franklin (1920–1958), are from other countries but spent time working in France. (A brochure with information about each of the women scientists is available online.)

"It's a scandal that there are only men on the Eiffel Tower," says Françoise Combes, an astrophysicist and president of the French Academy of Sciences. "We want parity for science. And for young women, seeing that women are scientists serves as a model."

Some permissions, formalities, and the making of prototypes are still needed, says Combes. She expects the names to be added to the tower before the end of the year. **PT**



◀ Sketches, such as these (clockwise, from top left) of Edmée Chandon, Rosalind Franklin, Henriette Faraggi, and Yvonne Choquet-Bruhat, and descriptions of the scientists whose names are to be inscribed on the Eiffel Tower are featured in a brochure that is available online. (Images © MKF éditions/Mathilde Cordelle.)