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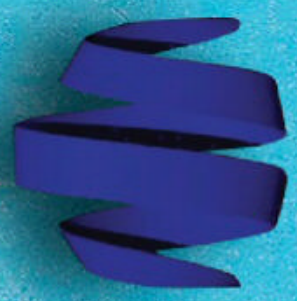

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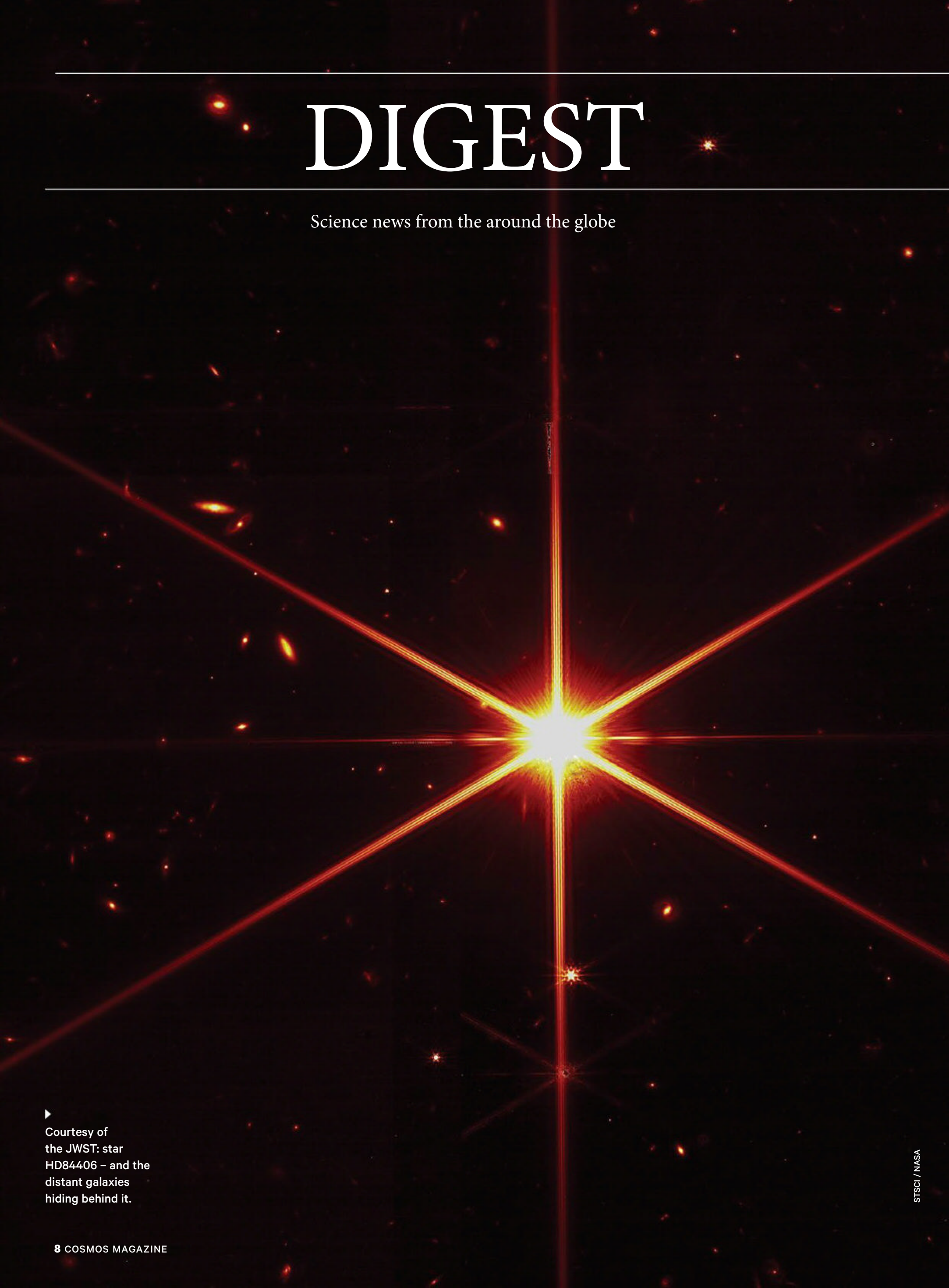

Courtesy of the JWST: star HD84406 – and the distant galaxies hiding behind it.

STSCI / NASA

SPACE

“Better than our most optimistic prediction” – JWST’s first images

Images of a non-descript star within our own galaxy reveal the James Webb telescope’s deep-field capabilities.

Images of a very “boring” star were the first sent back from NASA’s James Webb telescope, and they exceeded all hopes.

Having completed the self-assembly of its 18-segment main mirror, the telescope took exceptional images of an unexceptional star as a test of its capabilities. The star, known as HD84406, is 100 times fainter than what can be seen with the human eye. The star itself is of little interest – instead, astronomers are captivated by the spray of tiny dots scattered across the background. Each is a distant galaxy, and this is the first time they’ve ever been captured.

NASA officials expressed their overwhelming joy and relief at what these first images represent.

“We said last fall that we would know that the telescope is working properly when we have an image of a star that looks like a star,” says Lee Feinberg, Webb optical telescope element manager at NASA’s Goddard Space Flight Center. “Now you’re seeing that image. And I’m happy to say that the optical performance of the telescope is absolutely phenomenal… as good if not better than our most optimistic prediction.”

One hundred times more sensitive (and 3000 times more distant) than Hubble, and operating in the realm of infrared, James Webb is already capturing galaxies far more distant than any we have seen before.

“There’s no way that Webb can look for 2,000 seconds at any point in the sky, and not get an incredibly deep field,” says Jane Rigby, Webb operations project scientist at Goddard. “This is going to be the future from now on. Wherever we look, it’s a deep field … we’re seeing back in time to galaxies that we’re seeing the light as it looked billions of years ago.”

These images will allow us to peer back in time to capture galaxies from the early days of our universe, only a few hundred million years after the Big Bang – potentially transforming our understanding of galaxy formation and evolution.