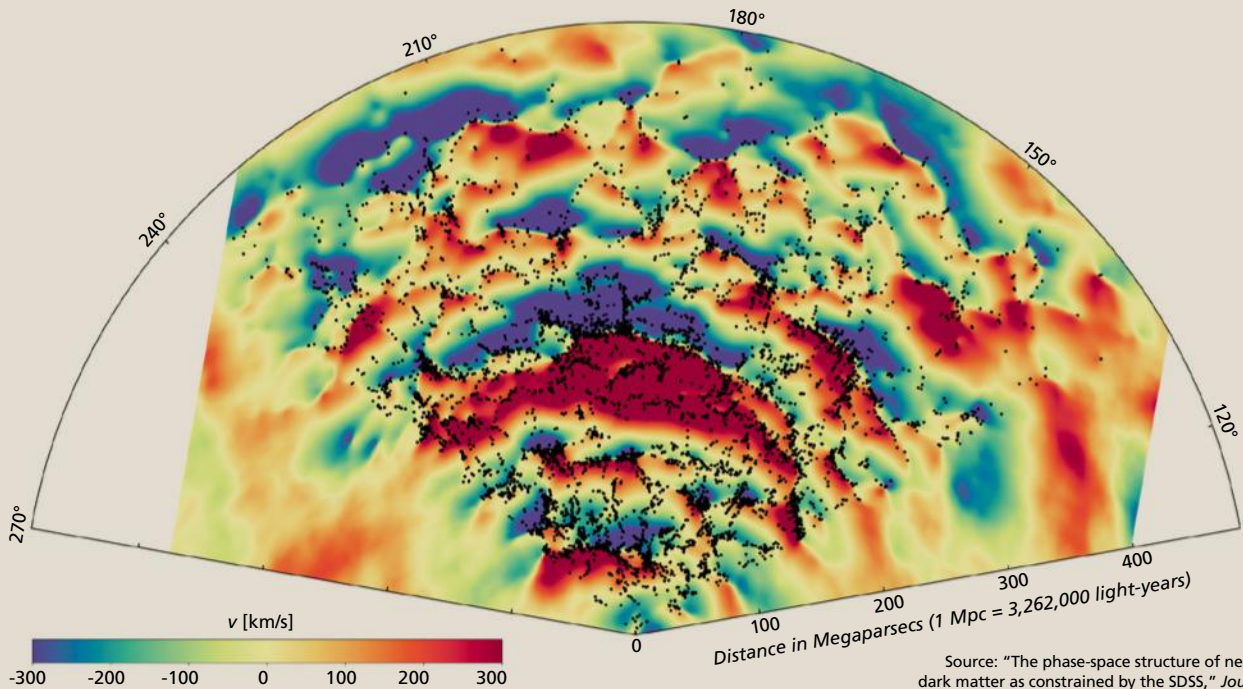


Charting the Unseen Sky

Cosmologists from the U.K., France and Germany have come up with new maps of how dark matter moves throughout the universe. Scientists can't actually observe dark matter, which makes up about 27 percent of our universe's total mass, since it doesn't react to light. So these researchers had to infer its movement by using data from the Sloan Digital Sky Survey

(SDSS), an ongoing project to create a 3-D map of the universe. Here, researchers have layered the location of galaxies (marked with black dots) pulled from the SDSS on top of their dark matter data. Warmer colors represent matter that's headed our way, while cooler colors indicate matter that's flying away from us.



Source: "The phase-space structure of nearby dark matter as constrained by the SDSS," *Journal of Cosmology and Astroparticle Physics*, 2017

TIMELINE Dental Doctoring Throughout History

A trip to the dentist can be a real pain, even if you're not among the roughly 1 in 10 people with high anxiety about dental treatments. But a whirring electric drill in your mouth may not seem so bad once you read about these ancient approaches to dentistry.

12000 B.C. Chip off the ol' chomper: The first known attempt at dental work, as evidenced in a skeleton unearthed in Italy in 1988 with a molar that had been chipped at with a stone tool.



5000 B.C. Legend of the tooth worm: The first documented reference, in a Sumerian text, of a myth popular throughout the ancient world that a worm living in your gums caused dental pain and cavities.



2650 B.C. First dentist: Wooden panels found in ancient Egyptian physician Hesy-Re's tomb describe him as "Chief of Dentists and Physicians," the earliest recorded mention of a dentist.

A.D. 20 A steamy solution: Roman folk tradition

recommends a minty steam bath to treat toothaches.

A.D. 1728 Tooth worm, part II: French dentist Pierre Fauchard publishes work that helps dispel the tooth worm myth, at least among dentists. The myth persists in popular lore, however, until the 20th century.



A.D. 1847 Filling the gap: Edwin Truman introduces a natural latex called gutta-percha, made from trees found in Southeast Asia, for use in root canal fillings. Previously, dentists had used anything

from silver to lead to asbestos.

A.D. 1965 Laser power: Researchers find that treatment with dental lasers makes teeth more resistant to decay. Studies since have suggested laser treatment could, in some procedures, help protect teeth, reduce pain and accelerate healing.

Future Print a new one: 3-D printers and digital scanning technology are close to offering easy ways to make and reproduce custom dental products like crowns and veneers.



—SYLVIA MORROW