

Arecibo Begins Search for Dark Galaxies

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Fitted with a new compound eye, the Arecibo radio telescope in Puerto Rico last week began a multiyear effort to survey all the galaxies in a large swath of sky out to a distance of 800 million light years—a survey that may well uncover the often-theorized, but never-seen, "dark galaxies."

If they do exist, dark galaxies, would be vast clumps of primordial hydrogen and helium gas that have drifted through the universe for 10 billion years or more, but for some reason have never been able to turn that gas into stars. As such, they would account for at least some of the mysterious cosmic "dark matter," which makes itself known only by its

gravitational effects on the ordinary, star-rich galaxies. Certainly the dark galaxies would have been missed by previous astronomical surveys, most of which were restricted to optical and infrared light; the cold hydrogen and helium of a dark galaxy would shine only at radio wavelengths—Arecibo's specialty.

Funded by the National Science Foundation and operated by the the National Astronomy and Ionosphere Center at Cornell University, the 305-meter-wide Arecibo Observatory telescope is the world's largest and most-sensitive single-dish radio telescope. Last year, its sensitivity was further boosted by the Arecibo L-Band Feed Array (ALFA): essentially a seven-pixel camera that will allow astronomers to collect data about seven times faster than before. The the survey project starting today has thus been dubbed ALFALFA, for Arecibo Legacy Fast Alfa Survey.

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