Archaeological acoustics of a Moorish mosque

Toward the end of the first millennium, Córdoba in southern Spain was one of the largest and most advanced cities in the world. Before the Great Mosque of Córdoba was converted to a Christian cathedral in the 13th century CE, it was second in size only to Mecca's. Construction began in 784, and over the next two centuries the house of worship was expanded three times—twice in depth and once in width—to accommodate the city's growing population. With its tall, diaphanous prayer space, it remains a premier example of Moorish architecture.

How did those expansions affect the iconic mosque's acoustics a thousand years ago? To find out, Rafael Suárez and colleagues at the University of Seville used the dodecahedral speaker shown here to acoustically characterize the current space. They then used computer simulation, virtual-reality techniques, and other tools of archaeoacoustics to reconstruct the historical soundscapes. They found that although the enlargements maintained visual unity, they aurally fragmented the liturgical space, producing significant variation in sound perception. (R. Suárez, A. Alonso, J. J. Sendra, *Appl. Acoust.* **140**, 214, 2018.)

—RJF

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