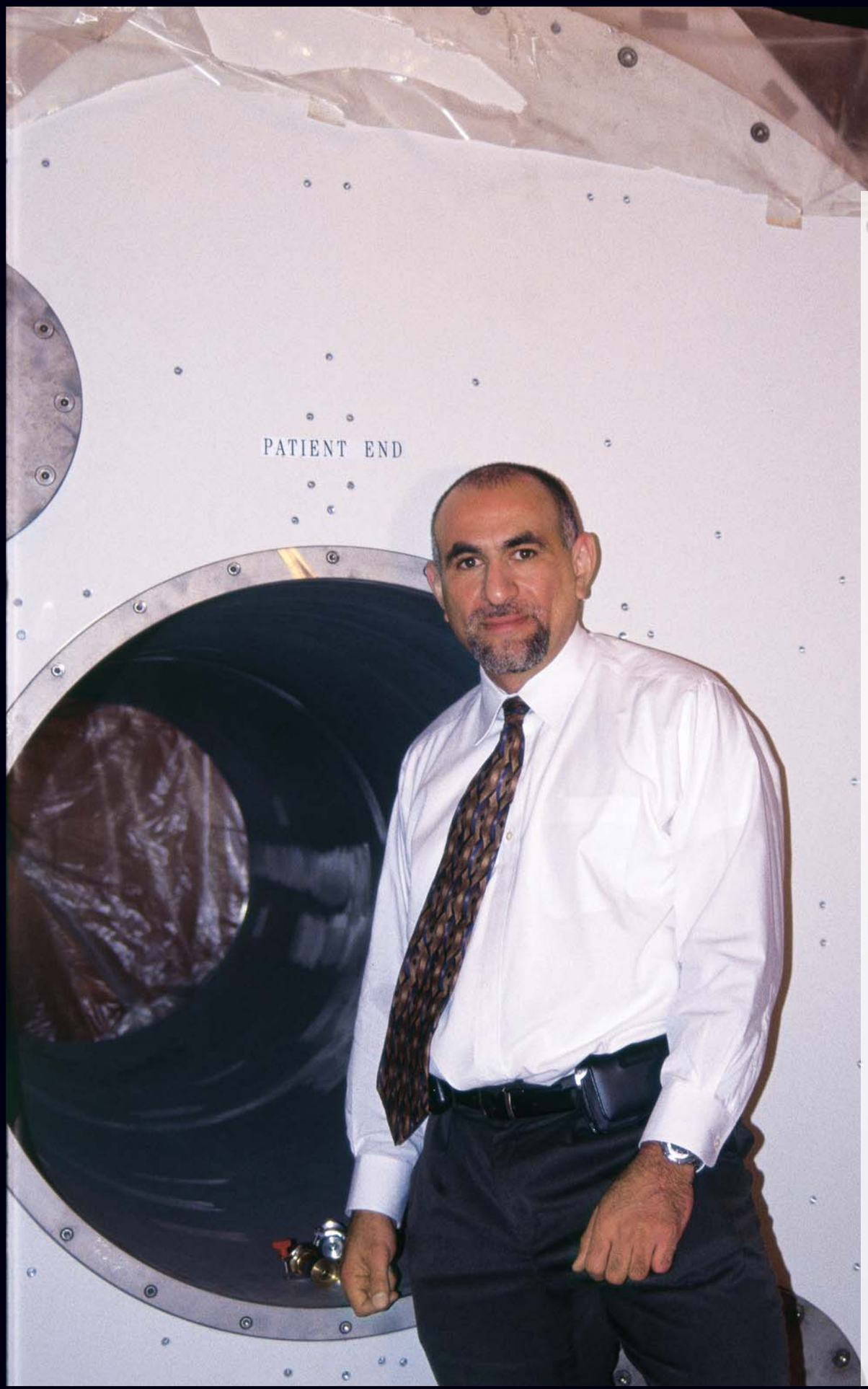

LOCATION, LOCATION

Say you happened to buy a magnet 140,000 times stronger than the magnetic field generated by Earth. Where do you put it?

Well, if it's part of a machine that weighs 400 tons, like the 7-tesla MRI scanner Fernando Boada just bought, you put it in the basement, for obvious structural reasons. (Tesla is the unit of magnetic flux density.) And if you're using that über-magnetic power to get incredibly high-resolution images, you keep it away from big, moving things, like buses. So, if you're in urban Oakland, the scanner goes in the center of the building. But you also need to think about where the elevators are in relation to it. Elevators are built with iron counterweights that can throw off resolution at the 100-micron level. Really, you might as well start from scratch and plan the building layout with a 7-tesla scanner in mind. That's more or less what Pitt did. Boada's new scanner was one of many considerations architects took into account when designing Biomedical Science Tower 3. Building designers placed the elevators as far from the machine as possible. And not all elevators in the building go to the basement.

Why all the fuss? Using 7 tesla, Boada (shown left), who directs Pitt's MR Research Center, will be able to generate images that are 10 times more detailed than a typical hospital MRI. He says that cancer and neuroscience researchers especially have been chomping at the bit to use the machine, which is among a handful designed for use on humans. He himself is excited about the prospects of examining stroke tissue more carefully. The new machine will help his lab more clearly determine whether brain tissue is still alive. (If not, the stroke therapy could cause more damage to the patient.)

With that huge magnet inside, what will stop the wristwatches of unsuspecting Fifth Avenue pedestrirans from flying off and sticking to the new building? Roughly 350 tons of the 400-ton machine is an iron shield, which keeps the magnetic field contained, for the most part, in the scanner. *—EL*

PHOTO | CAMI MESA