Professor Andre Frankenthal joins the UC Irvine Department of Physics & Astronomy

Frankenthal is a particle physicist who studies dark matter.
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Frankenthal wants to understand how dark matter — matter that we can’t see directly, but which astrophysicists think must exist because without its gravitational effects they couldn’t explain things like the motions of a galaxy’s stars — came to be. "The hypothesis that dark matter could arise from the debris of collisions between more simple, ordinary particles like protons and electrons relies on well-known and well-tested quantum-mechanical principles," said Frankenthal.

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In January, Andre Frankenthal joined the faculty of the UC Irvine Department of Physics & Astronomy as an assistant professor. Frankenthal, originally from Brazil, joins UC Irvine by way of Princeton University's Department of Physics, where he was a Robert H. Dicke postdoctoral fellow. "I'm an experimental particle physicist acutely interested in connections to astrophysics," said Frankenthal. "One of my main research interests consists of laboratory-based searches for elusive dark matter. We know dark matter exists in outer space, around stars and galaxies for example, but to this day we have no idea about its essence. Is it a new kind of fundamental particle, or maybe some new force of nature, or even something weirder? Finding the answer to this question is one of the most pressing problems in 21st-century physics." Frankenthal plans to spend his first years at UC Irvine working to understand how dark matter particles form. He'll do this using large physics laboratories like CERN in Geneva and France, where another UC Irvine professor, Jonathan Feng, is also leading an experiment that aims to detect the first dark matter particles.

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