Professor Manuel Reyes wins NSF grant to study geometric shapes

The grant will help the UCI mathematician explore geometric shapes with peculiar properties.

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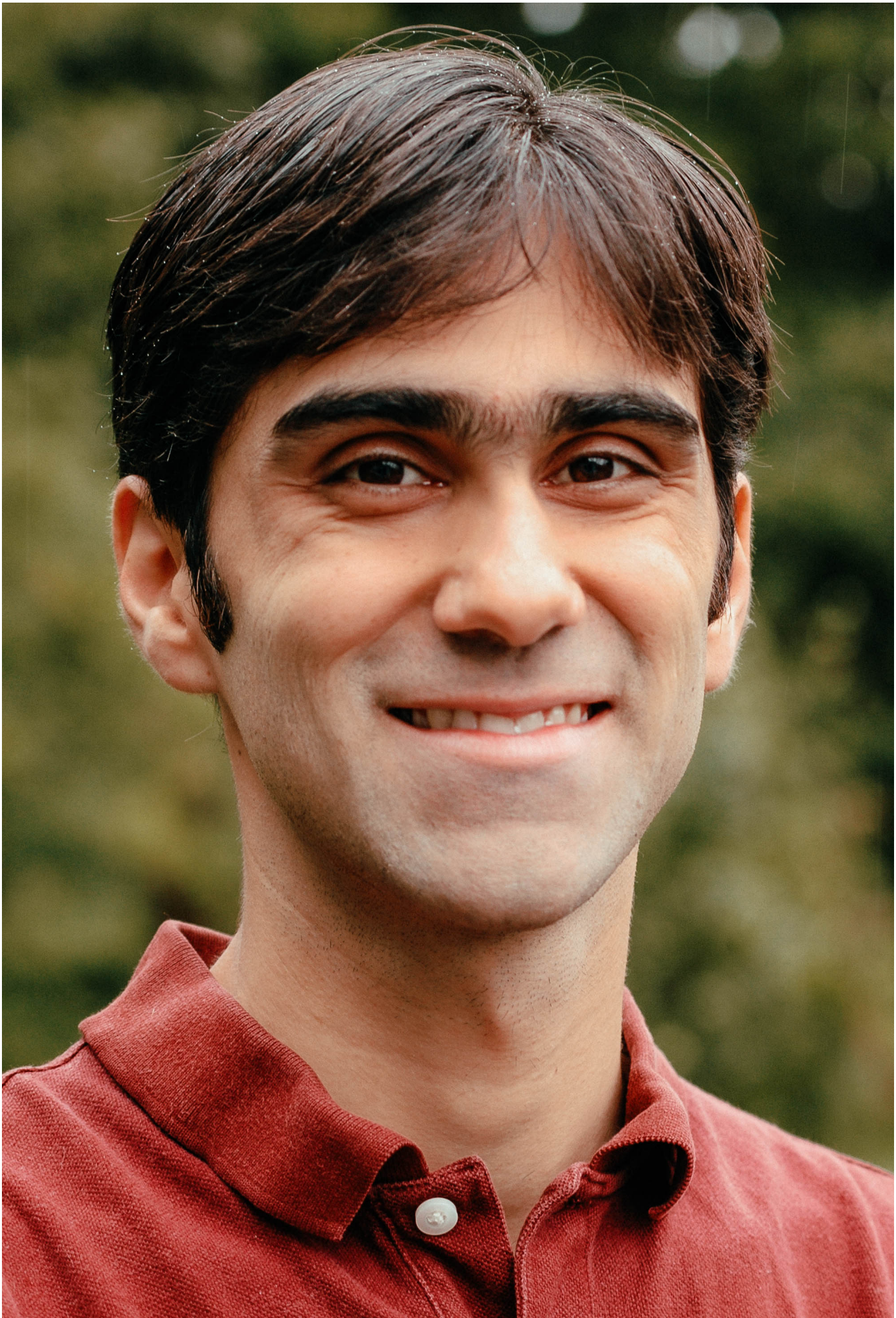

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Professor Manuel “Manny” Reyes, who joined UCI in 2020 as one of the Department of Mathematics’ newest faculty members, just won a $200,000 grant from the National Science Foundation to study the algebra of geometric shapes. Reyes will be studying “noncommutative spaces” — shapes that do not conform to typical algebraic equations like other shapes do. “There are many instances in mathematics where a geometric object is ‘perfectly encoded’ by the algebra of functions that define it,” said Reyes. “For several decades and for a variety of reasons, mathematicians have considered the possibility of noncommutative geometry where certain noncommutative algebras are imagined to similarly encode a ‘noncommutative space.’” Reyes’ grant will help fund collaborations with researchers at other institutions in an effort to construct models of noncommutative spaces and the algebras that define them — something that may one day inform research into quantum mechanics, where the algebra that describes phenomena on subatomic scales is fundamentally noncommutative.

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