Abstract

Algebra is famous for solving seemingly hopeless geometric problems by using symbolic manipulation to uncover hidden organizing principles. Much of the symbolic manipulation is based on the notion of symmetry. We will reveal the secret principle behind the geometry of the plane, 3-space, and 4-space in terms that Euclid could understand. Our goal is to explain these ideas in terms most math majors can understand, and so we encourage everyone to attend. With luck, the 3-sphere will make an appearance!

About the speaker. Cal Poly professor Eric Brussel received his Ph.D. from UCLA under the supervision of Murray Schacher. He is interested in a wide variety of subjects related to understanding the structure of finite-dimensional division algebras over arithmetically/geometrically interesting fields.