Math Club Presents:

Clocks, Parking Garages, and the Solvability of the Quintic:
A Friendly Introduction to Monodromy

Doctor Edray Goins

President of the National Association of Mathematics

Imagine the hands on a clock. For every complete interval the minute hand makes, the seconds hand makes 60, while the hour hand only goes one twelfth of the way. We may think of the hour hand as generating a group such that when we “move” twelve times then we get back to where we started. This is the elementary concept of a monodromy group.

In this talk, we give a gentle introduction to a historical mathematical concept which relates calculus, linear algebra, differential equations, and group theory into one neat theory called “monodromy”. We explore lots of real world applications, including why it’s so easy to get lost in parking garages, and present some open problems in the field. We end the talk with a discussion of how this is all related to solving polynomial equations, such as Abel’s famous theorem on the insolubility of the quintic by radicals.

When: Tuesday, March 26th,
3:15 pm - 4:15 pm

Where: Simpson Tower 213,
Math Conference Room

Edray Herber Goins grew up in South Los Angeles, California. He attended California Institute of Technology, where he majored in mathematics and physics, and earned his doctorate in mathematics from Stanford University. Prof. Goins currently runs an NSF-funded Research Experience for Undergraduates (REU) titled "Pomona Research in Mathematics Experience (PRiME).” Prof. Goins is interested in (1) Selmer groups for elliptic curves using class groups of number fields, (2) Belyi maps and Dessins d’Enfants, (3) origami as branched covers of elliptic curves, and (4) Galois groups, monodromy groups, and etale fundamental groups. He is the president of the National Association of Mathematics, Inc which seeks to promote the success of underrepresented minorities in the mathematical sciences; and is a member of numerous advisory boards throughout the country.

~Snacks and Coffee will be provided~