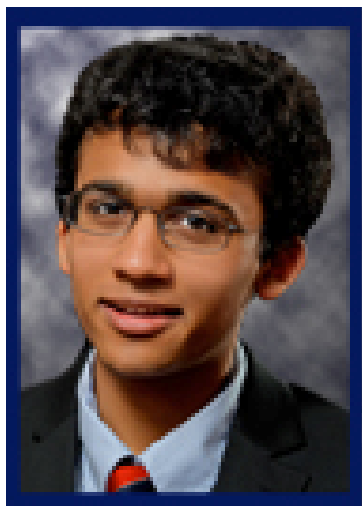


Davidson Fellow
Anirudh Prabhu

\$10,000 Scholarship Recipient



Personal Info

Age: 16

West Lafayette, Indiana

School, College and Career Plans

A rising senior at West Lafayette High School, Anirudh plans to major in mathematics and physics. He hopes to pursue a research career in both disciplines.

Davidson Fellows Submission: Mathematics

In his project, "Lower Bounds for Odd Perfect Numbers," Anirudh established the first nontrivial analytic lower bounds for odd perfect numbers. The search for odd perfect numbers is one of the oldest unsolved problems in mathematics. Many upper bounds for odd perfect numbers are established, however, no nontrivial analytic

lower bounds had been reported prior to Anirudh's work. By narrowing the gap between analytic upper and lower bounds, his work suggests an approach for proving the non-existence of odd perfect numbers and could contribute to data encryption technology.

Biography

Anirudh has been taking accelerated courses in math and science since elementary school. He completed a year-long Advanced Placement (AP) calculus course in his freshman year and a college course in multivariate calculus the following summer. He has also taken AP physics, computer science, chemistry and statistics and college courses in linear algebra, ordinary differential equations and partial differential equations. He is currently taking a senior-level college course in algebra.

Anirudh stumbled on the odd perfect number problem while looking for an unsolved mathematical problem on which he could work. The quest for odd perfect numbers has been described as, "...probably the oldest unsolved problem in number theory and possibly mathematics." He chose not to work with a research mentor, opting instead to pursue his own ideas and hunches. Anirudh felt daunted by the problem from time to time, but he persevered by focusing on the satisfaction of his work. The extracurricular math Anirudh learned for high school contests and the research papers he read helped him work on the problem.

Anirudh has published two research papers in *Integral Transforms and Special Functions* and *International Journal of Contemporary Mathematics*. Outside of math, he is the co-founder and president of his school's Red Cross Club, the vice president of his school's student council executive board and the president of the Mu Alpha Theta math club. He is also a member of the French and ping-pong clubs, and enjoys tennis, ping-pong, swimming and jogging.

Please see next page.



Davidson Fellow
Anirudh Prabhu
(cont.)

- 2011 Davidson Fellow
- 2011 National Advanced Placement Scholar
- 2011 Intel International Science and Engineering Fair (ISEF), Third Place Mathematics Category
- 2011 American Mathematical Society Karl Menger Award of Excellence, Third Place
- 2011 Intel ISEF Finalist for the State of Indiana
- 2011 Hoosier Science and Engineering Fair First Place Award, Grade Eleven
- 2011 59th Lafayette Regional Science and Engineering Fair Grand Prize Winner, Senior Division
- 2011 Le Grand Concours National French Examination, Seventh Place in Indiana
- 2011 Indiana Math League Perfect Score
- 2011 – 2007 American Mathematics Invitation Examination Invitee
- 2010 USA Physics Olympiad Semifinalist
- 2010 USA Junior Mathematics Olympiad Qualifier
- 2010 AP Scholar with Distinction
- 2008 Indiana American Regional Mathematics League Gold Team Member

Community Activities

Anirudh co-founded his school's Red Cross Club and helped organize a fundraiser which collected \$715 for the American Red Cross. He has served as a volunteer at the Lafayette Chapter of American Red Cross, assisting with its surveys. He has also worked as a volunteer at the Heritage Healthcare Facility, serving elderly residents. He has an enduring interest in teaching mathematics. As President of Mu Alpha Theta math club he organized and served in a math tutoring program in his school. In his freshman year he helped train junior high students in his school for the Mathcounts competition.