



Davidson Fellow Laureate

Michael Viscardi

(\$50,000 Scholarship Recipient)



Personal Info

Michael Viscardi

Age: 17

San Diego, California

School, College and Career Plans

Michael was homeschooled and will be attending Harvard and the New England Conservatory in the fall majoring in Mathematics and Violin Performance respectively. Michael hopes to become a mathematics professor and professional violinist.

Davidson Fellows Submission (*Mathematics*)

In his project, "On the Solution of the Dirichlet Problem with Rational Holomorphic Boundary Data," Michael solved the Dirichlet problem with rational boundary data. The Dirichlet problem was originally formulated in the 19th century to study the thermal equilibrium of a heated metal plate. Today, Dirichlet boundary conditions are applied to airplane wing design on airfoils, the two-dimensional cross-sections of the wings. Using four seemingly unrelated mathematical concepts, Michael formed and proved a new theorem and developed an exact, explicit formula for the solution. Michael's work can potentially aid in next generation aircraft design, aerodynamics, medical imaging, astronomy, heat flow and fluid dynamics.

Biography

Michael began homeschooling primarily to study higher level math, and by the time he was in the eighth grade he was taking classes at the University of California, San Diego. He has completed 56 credit hours in mathematics of mainly graduate courses, achieving nothing but A+'s and A's. Michael's interest in the Dirichlet problem occurred while he was taking a graduate core course in complex analysis, and since then, he has published two papers on the Dirichlet problem in the journal *Computational Methods and Function Theory*.

Besides being a brilliant mathematician, Michael is also an accomplished musician. He is the concertmaster of the San Diego Youth Symphony and Philharmonia for their 60th anniversary season and the first violinist in the La Jolla Piano Trio and Ensemble. He has soloed with professional orchestras on both piano and violin since he was 11. Michael also enjoys reading classics and writing fiction, and earned a perfect SAT score at 15, in addition to earning several perfect SAT II scores.

Please see next page.



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(Cont.)

Honors/Awards

- 2006 Davidson Fellow Laureate
- 2006 USA Today All-USA High School Academic First Team Member
- 2006 Intel International Science and Engineering Fair, Best of Category in Mathematics
- 2006 American Mathematical Society Menger Award First Place Winner
- 2006 Mu Alpha Theta Award Winner
- 2006 California State Science Fair, Project of the Year
- 2006 National Merit Scholar
- 2006 Intel Science Talent Search, National Finalist
- 2005 Siemens Westinghouse Competition, National Individual Grand Prize Winner, \$100,000 scholarship
- 2005, 2006 Musical Merit Scholarship Auditions Winner
- 2005 Goodlin Scholarship Competition, First Place Winner, Piano
- 2005 Music Teachers' Association of California Concerto Competition, First Place, Strings
- 2004 USA Math Olympiad Summer Program Participant
- 2003-2006 USA Math Olympiad Qualifier
- 2003 MATHCOUNTS National Championship Team Member

Community Activities

Michael performs regularly at community functions as a soloist and as part of chamber ensembles.

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