BAMA

School Year 2007—2008

Join us for a free talk...

4

Arthur T. Benjamin

Combinatorial Trigonometry (and a method to DIE for)

Santa Clara University

Santa Clara University*, Daly Science 207

Wednesday, January 16, 7:30 pm

Many trigonometric identities, including the Pythagorean theorem, have combinatorial proofs. Furthermore, some combinatorial problems have trigonometric solutions. All of these problems can be reduced to alternating sums, and are attacked by a technique we call D.I.E. (Description, Involution, Exception). This technique offers new insights to identities involving binomial coefficients, Fibonacci numbers, derangements, zig-zag permutations, and Chebyshev polynomials.

Arthur Benjamin earned his B.S. in Applied Mathematics from Carnegie Mellon and his PhD in Mathematical Sciences from Johns Hopkins. Since 1989, he has taught at Harvey Mudd College, where he is Professor of Mathematics and past Chair. In 2000, he received the Haimo Award for Distinguished Teaching by the Mathematical Association of America. Currently, he serves as the MAA's Polya Lecturer from 2006 to 2008.

His research interests include game theory and combinatorics, with a special fondness for Fibonacci numbers. Many of these ideas appear in his book (co-authored with Jennifer Quinn), "Proofs That Really Count: The Art of Combinatorial Proof", published by MAA. In 2006, that book received the Beckenbach Book Prize by the MAA. Professors Benjamin and Quinn are the editors of Math Horizons magazine, published by MAA.

Art is also a magician performing his mixture of math and magic to audiences all over the world, including the Magic Castle in Hollywood. He has demonstrated and explained his calculating talents in his book "Secrets of Mental Math" and on numerous television and radio programs, including The Today Show, CNN, and National Public Radio. He has been featured in Scientific American, Omni, Discover, People, Esquire, New York Times, Los Angeles Times, and Reader's Digest. In 2005, Reader's Digest called him "America's Best Math Whiz."

*** See back for map and directions.**