

# **Keith Mellinger**

**Professor of Mathematics at University of Mary Washington**

Fredericksburg, VA, US

Dr. Mellinger blends mathematics and music.

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## **Biography**

If you appreciate clear cell phone reception and watching a movie on your DVD without annoying static interference, you can thank the mathematics behind error-correcting codes, an area of research by University of Mary Washington Mathematics Professor Keith Mellinger. His work over past decade has led to many advances in coding theory along with other areas of discrete mathematics, his area of expertise. But his work also delves into recreational mathematics and pedagogy, and he is a strong supporter of undergraduate research. Dr. Mellinger speaks passionately about using mathematics to solve problems. "You're in a big room and there's a spider on one wall and on the opposite wall is a fly," he said. "The question is, if the spider wants to walk along the walls and get to the fly, what's the shortest path?" This is the question addressed in his article "The Spider and the Fly" which appears in the College Mathematics Journal, a publication of the Mathematical Association of America. The recipient of many internal grants from UMW, Dr. Mellinger is a Project NExT fellow through the Mathematical Association of America. He has received numerous awards including a young investigator grant from the National Security Agency for his research in finite geometry and coding theory, and a national writing award from the Mathematical Association of America. He has delivered professional presentations throughout the country and internationally, and has given many talks about the natural link between mathematics and music, his two biggest passions. Dr. Mellinger is an active professional guitarist and performs regionally both as a solo artist and in bluegrass and rock-n-roll bands, playing acoustic guitar and mandolin. In addition to his research and teaching, Dr. Mellinger also manages UMW's First-Year Seminar Program

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## **Industry Expertise**

Education/Learning, Training and Development, Research

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## **Areas of Expertise**

Discrete Mathematics, Coding Theory, Geometry, Math

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## **Affiliations**

American Mathematical Society, Mathematical Association of America, Institute of Combinatorics and its Applications

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## **Education**

**University of Delaware**  
Ph.D. Graduate Studies

**University of Delaware**  
M.S. Graduate Studies

**Millersville University**  
B.S. Undergraduate University

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## **Accomplishments**

**Millersville University Outstanding Young Alumni Achievement Award**  
Presented by the Millersville University Alumni Association

**Carl B. Allendoerfer National Writing Award**

Awarded by the Mathematical Association of America's for the article, "Kirkman's Schoolgirls Wearing Hats and Walking Through Fields of Numbers," co-authored with Ezra Brown (VA Tech) and published in Mathematics Magazine

**UMW Alumni Association Outstanding Young Faculty Award**

Presented by the University of Mary Washington Alumni Association

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