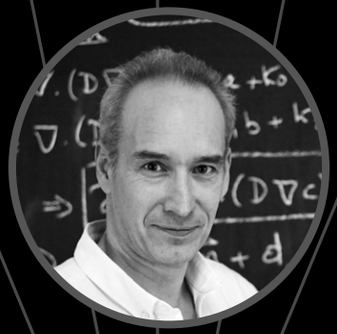

## ABOUT ALAIN GORIELY

Alain's mathematical career has deep ties to Arizona. He joined the mathematics department at U of A in 1998, after falling in love with the desert in many ways, including meeting his lifelong partner and building a unique research portfolio at the intersection of mathematics, mechanics, and biology. In 2010 Alain joined Oxford, becoming the inaugural Chair of Mathematical Modelling. Over the last 15 years, he has worked in multiple fields from modeling plant growth and the brain to exploring sustainable technologies like solar energy. In 2022, Alain's contributions were recognized with his election as a Fellow of the Royal Society. Always drawn to quirky science—his early days in Arizona saw him investigating whip cracking and the knotting of umbilical cords—Alain's career balances the unusual alongside more serious scholarly pursuits. His passion for public engagement found full expression following his election to the Gresham Professorship of Geometry, bringing mathematics to a broader audience through accessible and (hopefully) inspiring lectures.

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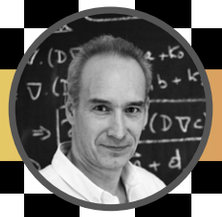
COLLEGE OF SCIENCE
Mathematics

THE UNIVERSITY OF ARIZONA
DEPARTMENT OF MATHEMATICS PRESENTS

# SEEING IS DECEIVING: THE MATHEMATICS OF VISUAL ILLUSIONS

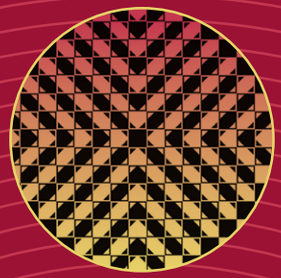


With renowned mathematician **ALAIN GORIELY**

**2025 DANIEL BARTLETT MEMORIAL LECTURE**

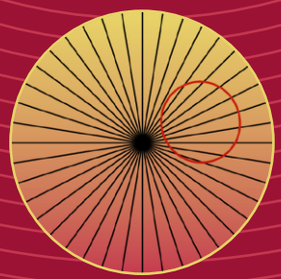
**THURSDAY, APRIL 17, 2025 | 6:30 PM**

THE UNIVERSITY OF ARIZONA



## ABOUT THE LECTURE

Illusions are a constant source of amusement. They are also a unique gateway into understanding the way we perceive the world and how the brain processes information—illusions were central to the development of the field of experimental psychology. The simplest visual illusions often involve a primary element—be it a line or a circle—that appears to distort or transform in the presence of surrounding elements, such as additional lines or dots. I will show that such perceptual interactions can be modeled through universal visual laws explaining a wide range of illusions. Grounded in models of the human visual processing system, such laws exhibit rich geometric structure and hence forge direct connections between the way our brain processes geometric information and the emergence of illusions.



The lecture is supported in part by the **Daniel Bartlett Memorial Endowment**, made possible through generous contributions by Daniel's family and friends. The fund's purposes are to memorialize Daniel Bartlett, to foster awareness and appreciation of mathematics of the highest level in the Tucson community, and to support graduate education in mathematics at the University of Arizona.

### 2025 DANIEL BARTLETT MEMORIAL LECTURE

## THURSDAY
## APRIL 17, 2025
## 6:30PM

**U of A Campus, ENR2 Building**
(Environment & Natural Resources 2)
Room N120
1064 E. Lowell Street, Tucson, AZ

**Dessert and hosted bar reception on the ENR2 rooftop following the lecture**

## MORE INFORMATION

**math.arizona.edu/bartlett**

## ABOUT THE DANIEL BARTLETT MEMORIAL LECTURE

Daniel Wezelman Bartlett was born November 8, 1980. He died of sudden cardiac arrest on August 8, 2006, just before commencing his fourth year of graduate school in mathematics at The University of Arizona. He was a wonderful and loving son to his parents, a close companion to his younger sister, and a fierce friend for many.

Daniel was born with physical impairments, but that didn't stop him from enjoying life. He played piano, trumpet, and shofar; he was a chess player; and he was an academic athlete, winning scholarships and contests for Academic Decathlon, economics, and the annual Shakespeare monologue competition (he loved portraying Iago). He was a proud leader in his Birith Youth Organization.

Daniel's academic interests were not restricted to mathematics. As a junior in high school he was selected for the Telluride Association Summer Program at Cornell, an intense program in the humanities.

He graduated from University High School in Tucson both as a Presidential Scholar and a National Merit Scholarship winner.

Daniel loved mathematics and excelled at it all of his life. He went to Harvard for his undergraduate work, concentrating in mathematics, where his undergraduate advisor was Barry Mazur. While an undergraduate, he worked one summer at The University of Arizona Astronomy Department and another summer at the National Security Administration, where he co-authored a classified paper. He received his BA degree in 2003.

While studying for his PhD at The University of Arizona, Daniel had narrowed his research interest to the field of algebraic geometry, and at the time of his death he was beginning the work he hoped to use for his doctoral dissertation.