

# 18th Annual Evans Hall Lecture Series and Awards Ceremony

The Department of Mathematics and Computer Science at Emory University is pleased to invite all to attend...

## Dr. Sarah Day College of William and Mary

- Ph.D. in Mathematics, Georgia Tech, 2003

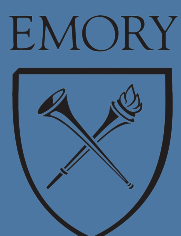
- M.S. in Mathematics, Emory University, 1998

- B.S. in Mathematics and Physics, Emory University, 1998



## Capturing Butterfly Effects

The Butterfly Effect, also known as sensitive dependence on initial conditions, is one of the defining properties of chaotic systems. Lorenz famously found evidence of this effect in his numerical simulations of a simplified weather model, now known as the Lorenz system. Since then, researchers have grappled with how to use dramatic increases in computing power to study the dynamics of systems known to misbehave, sometimes in very dramatic ways. I will discuss recent work in developing a computational approach for measuring the Butterfly Effect and other types of dynamics. This approach uses tools from many subfields of mathematical research and, when successful, produces mathematically rigorous results. As illustration, I will show computer-assisted proofs for a few model systems and discuss how this approach ties into, or sometimes challenges, prior theoretical work in the rapidly growing and evolving field of dynamical systems research.



**Tuesday, May 1 at 4pm in MSC E208**  
**Reception to follow in the atrium**