

# Unitons and Solitons

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102 Bradley Hall, 4:00 pm  
(Tea 3:30 pm Math Lounge)

## Abstract

A whirlwind tour, accessible to brave undergraduates, of the story behind the cover of January's AMS Notices, including motivations, methods and open problems.

Harmonic maps are a natural generalization of geodesics and minimal surfaces (soap bubbles), both classical problems in geometry. Solitons are a hot topic in mathematical physics, and parametrizing them is the first step in quantizing certain models needed in string theory. I will explain with lots of pictures and some equations how an iceberg of modern mathematics can be melted down to reveal a simple formula. Along the way I will make my case for the usefulness of integral, differential and algebraic geometry, and I will finish up with some open questions.