## Summing Divergent Series

Undergraduate Math Club CORNELL UNIVERSITY


SPEAKER
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## ABSTRACT

Proving that the series $\sum_{n=1}^{\infty} \frac{1}{n^{2}}$ converges requires only techniques covered in a first-year calculus course: showing that the sum converges to $\frac{\pi^{2}}{6}$ took the genius of Euler to prove. If it took a titan like him just to sum a series that has a limit, how powerful must a mathematician be to sum a series without one? We'll develop a basic framework for what summing divergent series should mean and introduce summation techniques used by Cesàro, Abel, and Euler himself. We'll assign values to several famous divergent series and not give any mathematicians a heart attack along the way, as well as discussing some limitations; time permitting, we will give a derivation of the functional equation of the Riemann zeta function.

# OCT 3 at 4:45pm 

Malott $532 \star$ Refreshments

