

## **Algebraic Number Theory and Fermat's Last Theorem**

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Abstract: Fermat's Last Theorem is one of the most famous problems in all of mathematics. Before being proven by Andrew Wiles in the 1990s, the problem became notorious for stumping mathematicians time and time again. In the mid 1800s, French mathematician Gabriel Lamé gave what he thought to be a proof of Fermat's Last Theorem until it was pointed out by Joseph Liouville that his proof resided on the incorrect assumption of unique factorization in cyclotomic fields. In this talk, we introduce some ideas from algebraic number theory in order to take a closer at Lamé's failed proof and where exactly it went wrong.

Prerequisites: Some abstract algebra (rings/fields)

References:

- [1] Paul Pollack, A conversational introduction to algebraic number theory, vol. 84, American Mathematical Soc., 2017.
- [2] Ian Stewart and David Tall, Algebraic number theory and fermat's last theorem, CRC Press, 2015.