Sophie Germain

First with a Realistic Plan to Tackle Fermat's Last Theorem

Sophie Germain was a French mathematician, born in 1776. Inspired by the story of Archimedes' death, she was determined, against her parents' wishes, to learn mathematics. She corresponded with famous mathematicians, such as Gauss and Lagrange, under a male pseudonym. It was revealed that she was a woman when she used her family connections to make sure that Gauss was safe during the French occupation of the town he was living in. Her work on number theory includes an unpublished plan for tackling Fermat's Last Theorem and she won a grand prize of the French Academy for a paper on vibrating elastic surfaces in which she used a fourth order partial differential equation.

The first required reading is a portion of a longer paper by my Ph.D. advisor and another professor of mine from New Mexico State University.

Required Reading

- **"Voici ce que j'ai trouv´e:" Sophie Germain's grand plan to prove Fermat's Last Theorem**, by Reinhard Laubenbacher and David Pengelley, https://arxiv.org/pdf/0801.1809.pdf , p. 4 - 12
- **Sophie Germain**, https://en.wikipedia.org/wiki/Sophie_Germain

Optional Reading

- **Marie-Sophie Germain,** https://mathshistory.st-andrews.ac.uk/Biographies/Germain/
- **Sophie Germain: Or Was Gauss a Feminist?**, Nick Mackinnon, *The Mathematical Gazette*, Vol. 74, No. 470 (Dec., 1990), pp. 346-351, DOI: 10.2307/3618130, Stable URL: www.jstor.org/stable/3618130.
- **Math Equals: Biographies of Women Mathematicians+Related Activities**, by Teri Perl, Addison Wesley, ISBN 0-201-05709-3, p. 62 - 81
- **Women in Mathematics**, by Lynn M. Osen, MIT Press, ISBN 0-262-65009-6, p. 83-93
- **Sophie's Diary (a fictional teenage diary of Sophie Germain)**, by Dora Musielak, Bloomington, Indiana, Authorhouse, 2008, 1-4184-0812-3