LINKS ABOUT THE LIFE AND WORK OF EMMY NOETHER

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After all the hard work we've devoted to learning about Noether's isomorphism theorems, Noetherian rings and Noether normalization the last couple of weeks, it might be interesting to know something about who the person behind the name actually was.

In this document, I've collected some links to places where you can learn more about various aspects of the life and work of **Emmy Noether** (1882–1935).

(1) Her paper *Idealtheorie in Ringbereichen* ("Ideal Theory in Rings") from 1920: `https://tinyurl.com/4rkm4fvs`, or this English translation by Daniel Berlyne: `https://arxiv.org/abs/1401.2577`. See how much of it you can follow, despite the way terminology and style have shifted in the last 100 years!

(2) Her article on *MacTutor History of Mathematics Archive* (a great resource for mathematical biographies): `https://mathshistory.st-andrews.ac.uk/Biographies/Noether_Emmy/`.

(3) Three are many great podcast episodes about her, for instance the following ones:

- BBC: `https://www.bbc.co.uk/sounds/play/m00025bw`.
- My Favorite Theorem (a wonderful podcast in general!): `https://kpknudson.com/my-favorite-theorem/2022/1/13/episode-73-courtney-gibbons`.
- The Dead Ladies Show: `https://deadladiesshow.com/2023/03/16/podcast-60-emmy-noether/`.

(4) An interesting lecture series about from the Institute of Advanced Study: `https://youtu.be/PeHyuJr5Sok`.

FIGURE 1. *Emmy Noether (in the middle) together with other prominent mathematicians at the time. Standing behind her is* ***Emil Artin****, the eponym of Artinian rings.*

"If one proves the equality of two numbers a and b by showing first that $a \leq b$ and then that $a \geq b$, it is unfair; one should instead show that they are really equal by disclosing the inner ground for their equality." — Emmy Noether, quoted in Hermann Weyl, Emmy Noether, *Scripta mathematica* **3** (3) (1935).

"For Emmy Noether, relationships among numbers, functions, and operations became transparent, amenable to generalisation, and productive only after they have been dissociated from any particular objects and have been reduced to general conceptual relationships." — Bartel van der Waerden, Nachruf auf Emmy Noether, *Mathematische Annalen* **111** (1935).

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