

Examples, counter-examples and the absence of examples.

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Abstract

My talk aims to call the audience's attention to the usefulness of doing experiments.

Well-conducted experiments can produce examples pointing out good research problems. They may also decisively contribute to discarding time-wasting or uninteresting research problems by producing counter-examples or for other reasons. The absence of examples in well-conducted experiments can also point out good research problems.

I plan to give a short overview of the GAP package `numericalsgps`, emphasizing some of the latest improvements and functions added, particularly those related to numerical semigroups.

Then, I will conduct live experiments and refer to some situations where the experimental approach succeeded.

In particular, I shall quickly review the theory behind the experimental approach used in joint work with Eliahou and Fromentin to show the absence of counter-examples to Wilf's conjecture among the more than 42×10^{20} (estimated value) numerical semigroups of genus up to 100.

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