MATEMATISKA INSTITUTIONEN
STOCKHOLMS UNIVERSITET
Avd. Matematik

SJÄLVSTÄNDIGT ARBETE I MATEMATIK

Onsdagen den 22 april kl. 13.00–14.00 presenterar Simon Almerström Przybyl sitt arbete "Choice Principles in Mathematics" (15 högskolepoäng, grundnivå).

Handledare: Henrik Forssel

Plats: Sal 34, hus 5, Kräftriket

Sammanfattning: In this thesis we illustrate how mathematics is affected by the Axiom of Choice (AC). We also investigate how other choice principles affect mathematics. Proofs of the following three major results are presented:

- AC, Zorn's Lemma and the Well-Ordering Theorem are equivalent. We prove this equivalence without using transfinite techniques.
- The Banach-Tarski Paradox (BTP) holds in ZFC but fails in ZF + AD + DC and is thus independent of ZF + DC. The latter results are proved under certain consistency assumptions using the connection between BTP and non-measurable sets.
- AC and Tychonoff's Theorem are equivalent.

Proofs of other minor results regarding choice principles are also presented.

Alla intresserade är välkomna!