Given $d$

and

$q$ the topological Tverberg problem asks for the minimal $n$

such that any continuous map from the $n$

-dimensional simplex to $\mathbb{R}^d$

identifies

$q$ points from pairwise disjoint faces. For

$q$ a prime power $n$

is $(q - 1)(d + 1)$

. The lower bound follows from a general position argument, the upper bound from equivariant topological methods. It was shown recently that for $q$

with at least two distinct prime divisors the lower bound may be improved. For those

$q$ non-trivial upper bounds had been elusive. I will show that $n$

is at most $q(d + 1) - 1$

for all $q$

. I had previously conjectured this to be optimal unless

$q$ is a prime power. This is joint work with Pablo Soberón.
Related Links:
Florian Frick and Pablo Soberón. "The topological Tverberg problem beyond prime powers."
Imre Bárány, Pavle V. M. Blagojevic, and Günter M. Ziegler. "Tverberg's theorem at 50: extensions and
counterexamples."

Event Type: Seminars
Event Subcalendar: Combinatorics and Geometry Seminar
Related Fields: Algebraic Topology Combinatorics Discrete Geometry

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