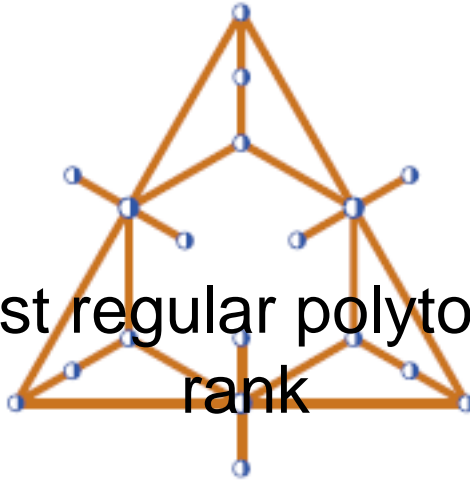


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The smallest regular polytopes of each rank



Content :

An abstract polytope is called *regular* if its automorphism group has a single orbit on flags (maximal chains). In this lecture I will report on recent work on finding for each n the regular n -polytopes with the smallest numbers of flags. With a few small exceptions, these are also the regular n -polytopes with the smallest numbers of elements, and those with the smallest number of links in the Hasse diagram. Surprisingly, for $n > 3$ the smallest instances are not the regular n -simplices (of type $\{3,3,\dots,3\}$).

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