

Some statistics on small connected trivalent vertex-transitive graphs

Tomaž Pisanski

University of Ljubljana, Ljubljana, Slovenia

University of Primorska, Koper, Slovenia

Tomaz.Pisanski@fmf.uni-lj.si

In April 2014 Primož Potočnik, Pablo Spiga and Gabriel Verret published a census of small connected cubic vertex-transitive graphs: <http://www.matapp.unimib.it/spiga/census.html>. The census contains 111360 graphs of order at most 1280 and is spread over 13 files, the largest having 234 MB. It was shown by Marušič and Scapellato [1] that every trivalent vertex-transitive graph has a semi-regular automorphism. This enabled us to represent each graph from the census as a cyclic cover over a smaller graph. Using this fact we are able to represent the graphs stored in the census files to a single file of size about 2% of the original size. In this talk some statistics that complement the statistics from [2] and [3] will be presented. Most of the talk is work in progress with Robert Morse and Primož Potočnik.

References

- [1] Marušič, Dragan and Scapellato, Raffaele, Permutation groups, vertex-transitive digraphs and semiregular automorphisms. *European J. Combin.* **19** (1998) 707-712.
- [2] P. Potočnik, P. Spiga, G. Verret, Cubic vertex-transitive graphs on up to 1280 vertices, arXiv:1201.5317v1 [math.CO].
- [3] P. Potočnik, P. Spiga, G. Verret, Bounding the order of the vertex-stabiliser in 3-valent vertex-transitive and 4-valent arc-transitive graphs, arXiv:1010.2546v1 [math.CO].