

1096-05-873

Oliver R Knill* (knill@math.harvard.edu), Department of Mathematics, One Oxford Street,
Cambridge, MA 02138. *Classical mathematical structures within topological graph theory.*

Finite simple graphs are a playground for classical areas of mathematics. We illustrate this by looking at theorems in topology (i.e. homotopy, category, fixed point theorems), geometry (i.e. Gauss Bonnet, Poincare-Hopf, Riemann-Hurwitz) analysis (zeta functions, extremal problems), differential equations (i.e. heat or wave equations, integrable systems), linear algebra (i.e. spectral perturbation, Hodge theory, isospectral graphs) or combinatorics (simplex combinatorics, matrix tree theorems). (Received September 17, 2013)