COSPECTRAL PAIRS OF REGULAR GRAPHS WITH DIFFERENT CONNECTIVITY

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Dedicated to the memory of Slobodan Simić

Abstract

For vertex- and edge-connectivity we construct infinitely many pairs of regular graphs with the same spectrum, but with different connectivity.

Keywords: graph spectrum, vertex-connectivity, edge-connectivity, spectral characterization.

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REFERENCES

- [1] A. Abiad, B. Brimkov, X. Martínez-Rivera, J. Zhang and S. O, *Spectral bounds for the connectivity of regular graphs of given order*, Electron. J. Linear Algebra **34** (2018) 428–443.
doi:10.13001/1081-3810.3675
- [2] Z. Blázsik, J. Cummings and W.H. Haemers, *Cospectral regular graphs with and without a perfect matching*, Discrete Math. **338** (2015) 199–201.
doi:10.1016/j.disc.2014.11.002
- [3] A.E. Brouwer and W.H. Haemers, *Spectra of Graphs* (Springer, New York, 2012).
doi:10.1007/978-1-4614-1939-6
- [4] S.M. Cioabă, *Eigenvalues and edge-connectivity of regular graphs*, Linear Algebra Appl. **432** (2010) 458–470.
doi:10.1016/j.laa.2009.08.029
- [5] D.M. Cvetković, P. Rowlinson and S.K. Simić, *An Introduction to the Theory of Graph Spectra* (Cambridge University Press, Cambridge, 2009).
doi:10.1017/CBO9780511801518

- [6] M. Fiedler, *Algebraic connectivity of graphs*, Czechoslovak Math. J. **23** (1973) 298–305.
- [7] C.D. Godsil and B.D. McKay, *Constructing cospectral graphs*, Aequationes Math. **25** (1982) 257–268.
doi:10.1007/BF02189621
- [8] W.H. Haemers, *Distance-regularity and the spectrum of graphs*, Linear Algebra Appl. **236** (1996) 265–278.
doi:10.1016/0024-3795(94)00166-9
- [9] W.H. Haemers and E. Spence, *Graphs cospectral with distance-regular graphs*, Linear Multilinear Algebra **39** (1995) 91–107.
doi:10.1080/03081089508818382
- [10] A. Schrijver, *Combinatorial Optimization: Polyhedra and Efficiency* (Springer-Verlag, Berlin, 2003).
- [11] D. Stevanović, V. Brankov, D.M. Cvetković and S. Simić, newGRAPH.
<http://www.mi.sanu.ac.rs/newgraph/index.html>

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