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ON THE INTERSECTION GRAPHS OF IDEALS OF DIRECT PRODUCT OF RINGS

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Abstract

In this paper we first calculate the number of vertices and edges of the intersection graph of ideals of direct product of rings and fields. Then we study Eulerianity and Hamiltonicity in the intersection graph of ideals of direct product of commutative rings.

Keywords: ideal, direct sum, intersection graph, Eulerian, Hamiltonian.

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References

[1] M.F. Atiyah and I.G. Macdonald, Introduction to Commutative Algebra (Addison-Wesley Publishing Co, Reading, Mass.-London-Don Mills Ont, 1969).

[2] I. Chakrabarty, Sh. Ghosh, T.K. Mukherjee and M.K. Sen, *Intersection graphs of ideals of rings*, Discrete Math. **309** (2009) 5381–5392. doi:10.1016/j.disc.2008.11.034

[3] B. Cskny and G. Pollk, *The graph of subgroups of a finite group*, Czechoslovak Math. J. **19** (1969) 241–247.

[4] R.P. Grimaldi, *Graphs from rings*, Congr. Numer. **71** (1990) 95–103.

[5] E. Szpilrajn-Marczewski, *Sur deux proprits des classes d'ensembles*, Fund. Math. **33** (1945) 303–307.

[6] D.B. West, Introduction To Graph Theory (Prentice-Hall of India Pvt. Ltd, 2003).

[7] B. Zelinka, *Intersection graphs of finite abelian groups*, Czechoslovak Math. J. **25** (2) (1975) 171–174.

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