

## ON PERFECTNESS OF INTERSECTION GRAPH OF IDEALS OF $\mathbb{Z}_n$

ANGSUMAN DAS

*Department of Mathematics*  
*St. Xavier's College, Kolkata*  
*30, Park Street, Kolkata, India 700016*

**e-mail:** angsumandas@sxccal.edu

### Abstract

In this short paper, we characterize the positive integers  $n$  for which intersection graph of ideals of  $\mathbb{Z}_n$  is perfect.

**Keywords:** intersection graph, strong perfect graph theorem, weakly triangulated graph, induced odd cycle.

**2010 Mathematics Subject Classification:** 05C17, 05C25.

### REFERENCES

- [1] A. Amini, B. Amini, E. Momtahan and M.H. Shirdareh Haghighi, *On a Graph of Ideals*, Acta Math. Hungar. **134** (2012) 369–384.
- [2] D.F. Anderson and P.S. Livingston, *The zero-divisor graph of a commutative ring*, J. Algebra **217** (1999) 434–447.
- [3] A. Badawi, *On the Dot Product Graph of a Commutative Ring*, Comm. Algebra **43** (2015) 43–50.
- [4] J. Bosak, *The graphs of semigroups*, in: Theory of Graphs and Application (Academic Press, New York, 1964) 119–125.
- [5] P.J. Cameron and S. Ghosh, *The power graph of a finite group*, Discrete Math. **311** (2011) 1220–1222.
- [6] I. Chakrabarty, S. Ghosh, T.K. Mukherjee and M.K. Sen, *Intersection graphs of ideals of rings*, Discrete Math. **309** (2009) 5381–5392.
- [7] M. Chudnovsky, N. Robertson, P. Seymour and R. Thomas, *The strong perfect graph theorem*, Ann. Math. **164** (2006) 51–229.
- [8] A. Das, *Non-zero component graph of a finite dimensional vector space*, Commun. Algebra **44** (2016) 3918–3926.  
doi:10.1080/00927872.2015.1065866

- [9] A. Das, *On non-zero component graph of vector spaces over finite fields*, J. Alg. Appl. **16** (2017).  
doi:10.1142/S0219498817500074
- [10] A. Das, *Non-zero component union graph of a finite dimensional vector space*, Linear and Multilinear Algebra **65** (6) (2017) 1276–1287.  
doi:10.1080/03081087.2016.1234577
- [11] A. Das, *Subspace inclusion graph of a vector space*, Commun. Algebra **44** (2016) 4724–4731.  
doi:10.1080/00927872.2015.1110588
- [12] A. Das, *On subspace inclusion graph of a vector space*, Linear and Multilinear Algebra, to appear.  
doi:10.1080/03081087.2017.1306016
- [13] R.B. Hayward, *Weakly triangulated graphs*, J. Combin. Theory Ser. B **39** (1985) 200–209.
- [14] H.R. Maimani, M.R. Pournaki, A. Tehranian and S. Yassemi, *Graphs attached to rings revisited*, Arab. J. Sci. Eng. **36** (2011) 997–1011.
- [15] R. Nikandish and M.J. Nikmehr, *The intersection graph of ideals of  $\mathbb{Z}_n$  is weakly perfect*, Util. Math. (to appear).
- [16] D.B. West, Introduction to Graph Theory (Prentice Hall, 2001).

Received 3 March 2017

Revised 19 April 2017

Accepted 21 April 2017