

Liouville type theorems on \mathbb{Z}^2 and \mathbb{Z}^1

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ABSTRACT.

Necessary and sufficient conditions for the Liouville property for generalized subharmonic functions on \mathbb{Z}^2 and \mathbb{Z}^1 are found.

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REFERENCES

- [1] Duffin, R. J., *Discrete potential theory*, Duke Math. J., **20** (1953), No. 2, 233–251
- [2] Haymann, W. K. and Kennedy P. B., *Subharmonic functions*, vol. **1**, Academic press, 1976
- [3] Nash-Williams, C. St. J. A., *Random walks and electric currents in networks*, Math. Proc. Camb. Phil. Soc., **55** (1959), No. 2, 181–194
- [4] Rigoli, M., Salvatori, M. and Vignati, M., *Subharmonic functions on graphs*, Israel J. Math., **99** (1997), No. 1, 1–27
- [5] Telcs, A., *The art of random walks*, Lecture Notes Math., 1885, Springer, 2006

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