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For a given subset D of the positive integers, the integer distance graph $G(\mathbb{Z}, D)$ is defined on the set of integers as vertex set and two vertices are adjacent if the (Euclidean) distance between them belongs to D . We want to characterize its chromatic number according to the distance set D .

The integer distance graphs were first systematically studied by Eggleton–Erdős–Skilton in 1985, and have been investigated in many ways.

In this talk, we approach the problem under p -adic norm. The chromatic numbers of some distance sets will be determined under p -adic distance. We discuss how the p -adic results can be connected to and complement some of the results in Euclidean norm.

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