

## Mathematics &gt; Metric Geometry

# Colourings of lattices and coincidence site lattices

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The relationship between the coincidence indices of a lattice  $\Gamma_1$  and a sublattice  $\Gamma_2$  of  $\Gamma_1$  is examined via the colouring of  $\Gamma_1$  that is obtained by assigning a unique colour to each coset of  $\Gamma_2$ . In addition, the idea of colour symmetry, originally defined for symmetries of lattices, is extended to coincidence isometries of lattices. An example involving the Ammann-Beenker tiling is provided to illustrate the results in the quasicrystal setting.

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