

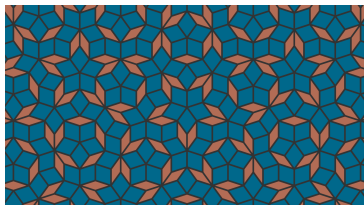
# Exact results on electronic wavefunctions of 2D quasicrystals

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# QUASICRYSTALS

Aperiodic yet “ordered” arrangement of atoms/molecules/colloids

A quasicrystal has the following properties:

- it is **aperiodic**
- it is **long range ordered** (its diffraction pattern exhibits sharp peaks).

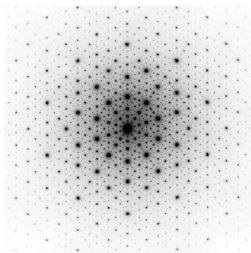
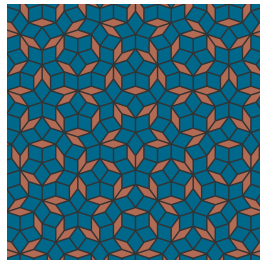
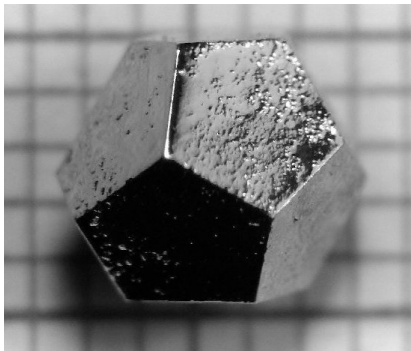


Figure de diffraction d'un alliage d'AlPdMn  
(groupe de Conradin Beeli)

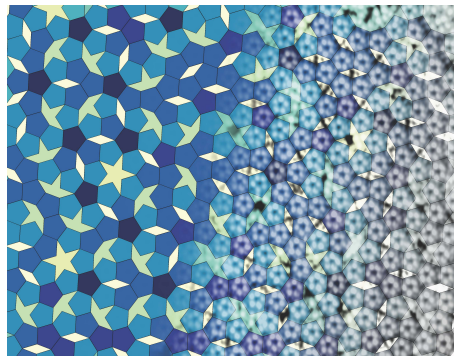


Un morceau du pavage de Penrose,  
souvent utilisé pour modéliser les quasis.

## EXEMPLES DE QUASICRISTAUX



HoMgZn alloy in its icosahedral phase  
(doi:10.1038/nmat1244)



A 2D molecular quasicrystal  
(doi:10.1038/nature12993)

- many intermetallic alloys are quasiperiodic
- a single natural example: Khatyrka meteorite hosts quasicrystals (doi:10.1126/science.1170827).