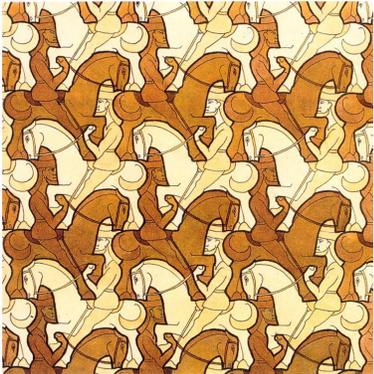


What lattice type is this?  
What is the basis?

The image shows a 2D lattice of red circles on a gray background. The circles are arranged in a regular, repeating pattern, forming a hexagonal lattice. The circles are arranged in a grid where each circle is surrounded by six other circles, one in each direction. The lattice is composed of a single type of particle (red circles) arranged in a hexagonal pattern.



What lattice type is this?  
What is the motif?

The image shows a repeating pattern of stylized horses in brown and yellow. The horses are arranged in a regular, repeating pattern, forming a lattice. The horses are arranged in a grid where each horse is surrounded by six other horses, one in each direction. The lattice is composed of a single type of motif (stylized horses) arranged in a hexagonal pattern.

# CIF for TiO<sub>2</sub> (rutile)

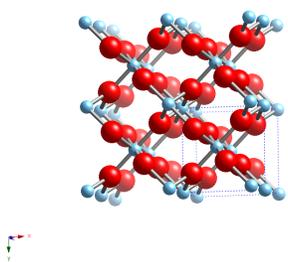
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# http://ruff.geo.arizona.edu/AMSD/amcsd.php
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# The file may be used within the scientific community so long as
# proper attribution is given to the journal article from which the
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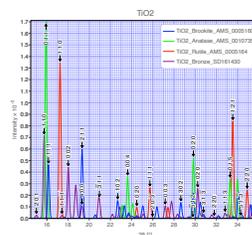
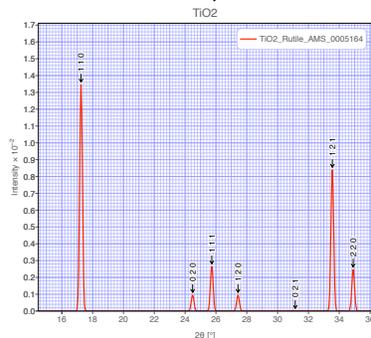
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You need to understand what is in the red boxes, especially the first and last, and the concept of the middle one.

## TiO<sub>2</sub> (rutile) Structure in real space



## TiO<sub>2</sub> (rutile) X-ray diffraction (reciprocal structure; Fourier transform)



Other arrangements of the same atoms produce different fingerprints →