



Advanced Electromagnetics:
21st Century Electromagnetics

Appendix – Solid State EM

1

Appendix Outline

- Hexagonal Lattice

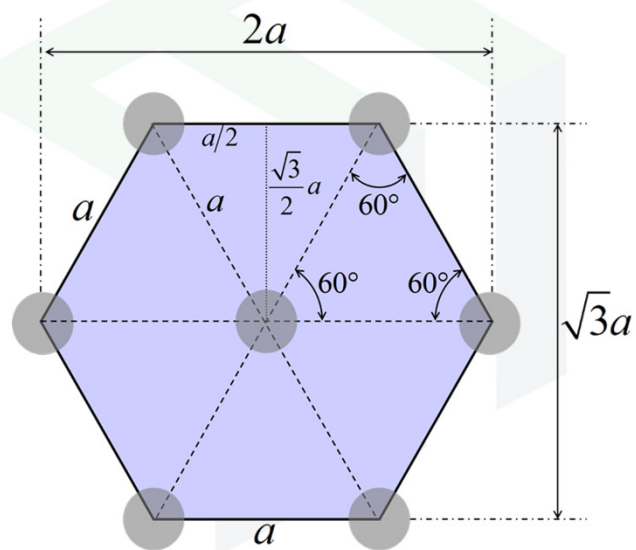
2

Hexagonal Lattice

Slide 3

3

Geometry of a Hexagonal Lattice

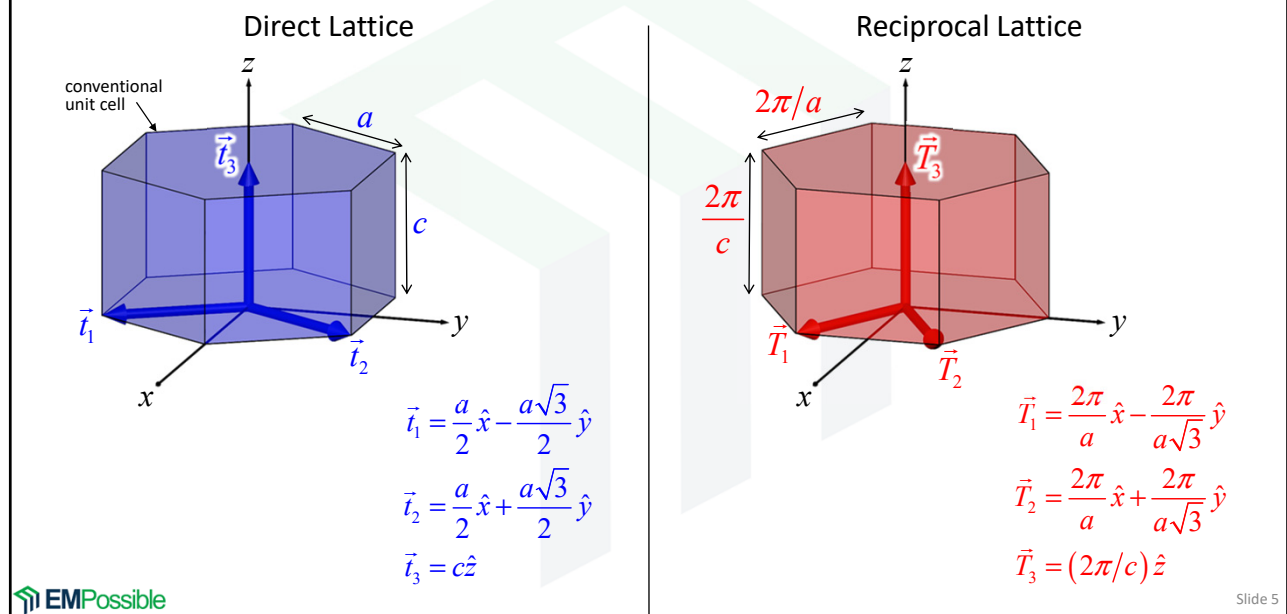


EMPossible

Slide 4

4

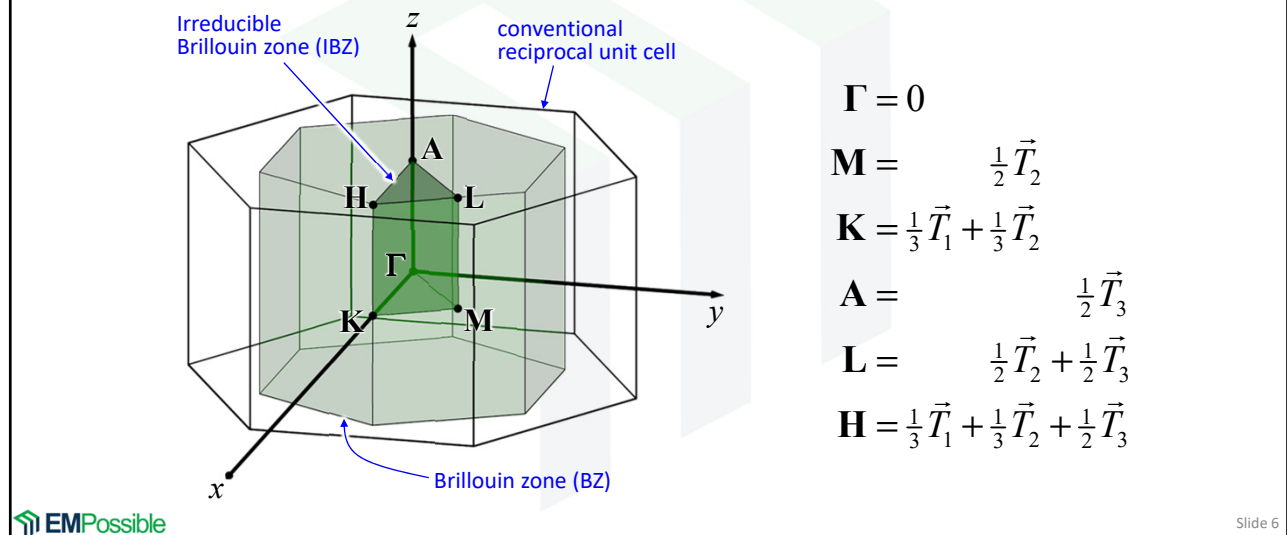
Direct and Reciprocal Lattices



5

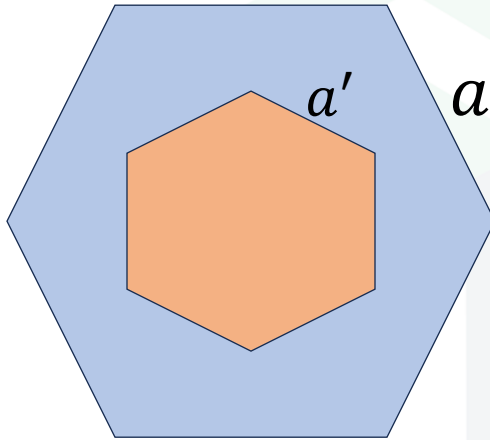
Key Points of Symmetry

Brillouin Zone and Irreducible Brillouin Zone



6

Area Calculations



Area of Main Hexagon

$$A = \frac{3\sqrt{3}}{2} a$$

Area of Smaller Hexagon

$$A' = \frac{3\sqrt{3}}{2} a' = \frac{\sqrt{3}}{2} a$$

$$a' = \frac{a}{\sqrt{3}}$$