

Lecture EM_2B = supplement to main TEM lecture :: Electron diffraction

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Electron diffraction can be studied at several levels
(from the simplest to more-and-more complex)

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- * Level 1 = BL = Bragg Law
What it explains: distances of diffraction spots/rings from the center
 - * Level 2 = LDP, EwC = Laue Diffraction Condition, Ewald Construction
What it explains: distances and positions of diffraction spots
 - * Level 3 = KDT = Kinematic Diffraction Theory
What it explains: distances, positions and intensities of diffraction spots
 - * Level 4 = Structure analysis, dynamic diffraction theory...
Beyond the scope of this course - see (good) textbooks on crystallography

In current version of EM lectures,
the basics of all three levels are covered in the main TEM lecture

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- * Level 1 = TEM lecture, section TEM/ED
...this should be enough to understand the principle of electron diffraction
 - * Level 2 = TEM lecture, Appendix
...this explains appearance, calibration and indexing of diffractograms
 - * Level 3 = TEM lecture, Appendix
...this explains how to calculate diffractogram from a known structure
...which suffices for structure identification, but not for structure analysis

Last two remaining things connected with diffraction theory within this course:

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- * Equivalence and interference of cos/exp waves
=> explained in the Appendix of INTROductory lecture
 - * Complete Jupyter/Python calculation of powder diffraction pattern of Au
=> given as the second part of this lecture = supplement EM_2C