V44

X-ray reflectrometry

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Contents

1 Objective

2 Background

[1]

2.1 Kiessig fringes

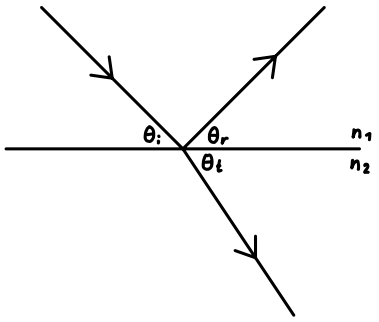

Figure 1: Depiction of reflection and refraction of light rays on a smooth surface.

Fresnel's formulae[1]

[2]

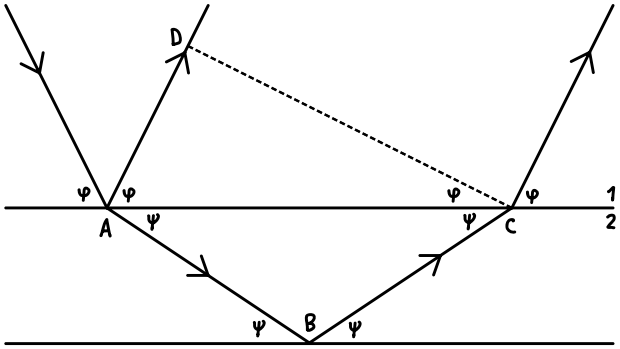

Figure 2: Schematic light paths in systems of a thin layer on a substrate responsible for Kiessig oscillations according to [2].

2.2 Stratified media

[3]

[1]Followin the derivation in [**idfk**] among others.

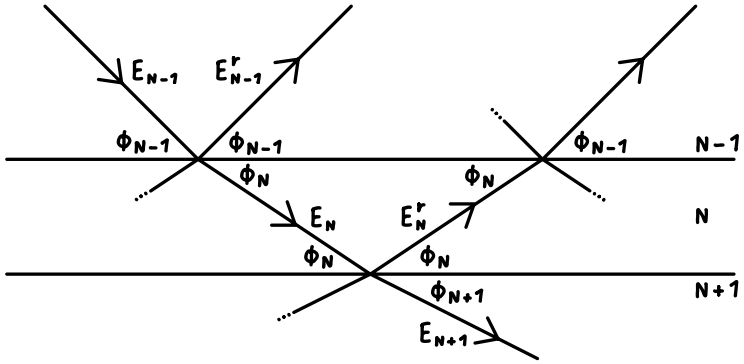

Figure 3: Conceptual visualization of the Parratt algorithm presented in [3].

3 Procedure

4 Results

5 Discussion

References

[1] *V44, X-ray reflectrometry.* TU Dortmund, Department of Physics. 2024.

[2] Heinz Kiessig. "Interferenz von Röntgenstrahlen an dünnen Schichten". In: *Annalen der Physik* 402.7 (1931), pp. 769–788. DOI: https://doi.org/10.1002/andp.19314020702.

[3] L. G. Parratt. "Surface Studies of Solids by Total Reflection of X-Rays". In: *Phys. Rev.* 95 (2 July 1954), pp. 359–369. DOI: 10.1103/PhysRev.95.359.

Appendix