One-beam coherent control effect at Si(111) surfaces: linear optical formalism and layer-by-layer analysis

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\[
dJ^a / dt = \eta^{abc} |E^b| |E^c| \sin(\phi_b - \phi_c).
\]

As the second step, we developed a microscopic formalism to separate the optical response produced by each atomic layer of a semi-infinite crystal. Finally, we applied this formalism to the clean Si(111) (2×1), Si(111):H (1×1) and Si(111):As(1×1) surfaces. The research was supported by NSERC Discovery Grant. [1] J.E. Sipe and A.I. Shkrebtii, Phys. Rev. B, 61, 5337 (2000)