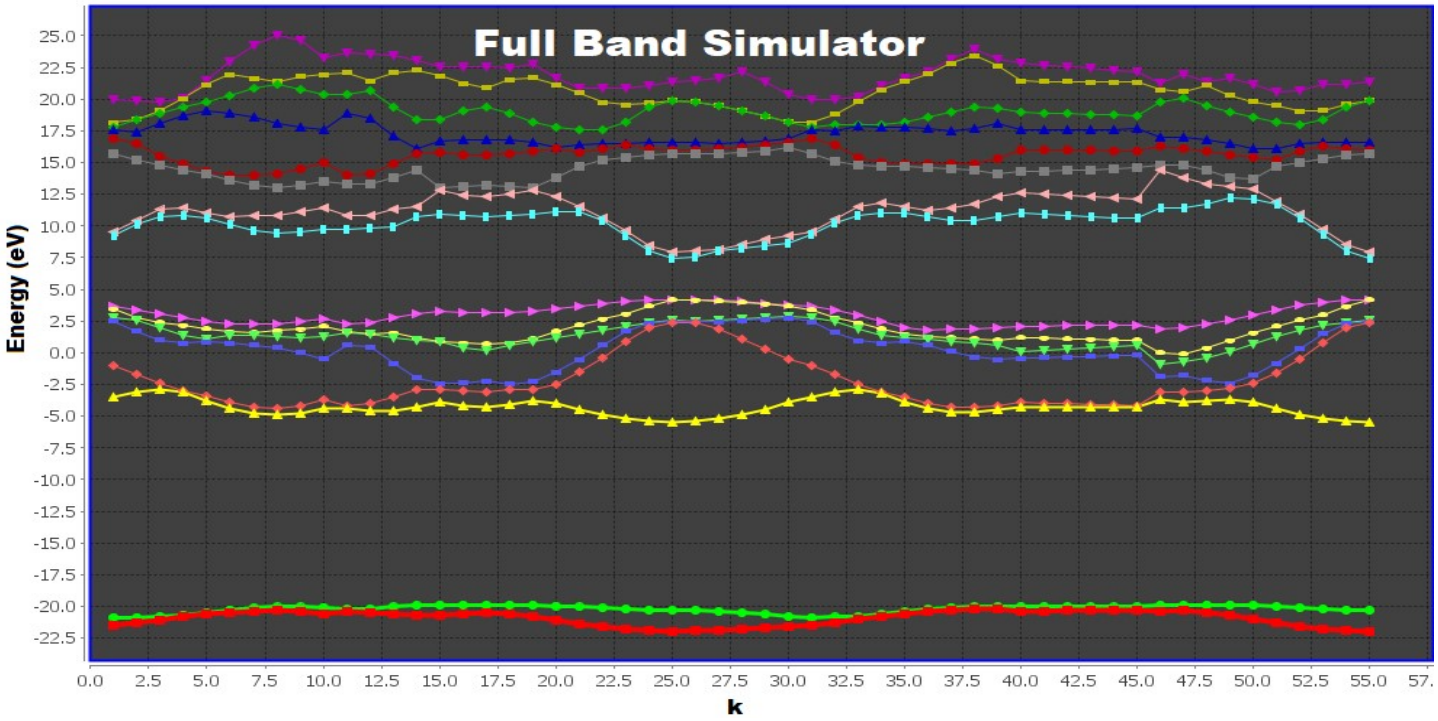

Introduction

World's first commercial Full Energy Band simulator based on lattice constant 'a' extracted from the epi grown mono layer by EpiGrow simulator. The simulator is based on Emperical Pseudopotential method given by Cohen. The EPM method involves the fitting of the atomic form factors Va(G) to experiment. The main feature of Full Energy Band simulator is to analyze the electronic band structures of zincblende and wurtzite materials using the empirical pseudopotential method, with the form factors adjusted to reproduce correctly the most important band features. Relevant energy spacing's as well as direct and indirect band gaps nature can also be derived from the band structures. The electron effective masses, DOS at high symmetry points can be obtained using Full Energy Band simulator. The calculated parameters can be calibrated against reported existing experimental data and can be used in the interpretation of experiments and for numerical simulation purposes. Provides flexibility to users to chose lattice constant and analyze the full electronic band structures over computer.

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Features

- Electronic structure of the group IV, III-V and II-VI binary compounds
- Lattice constants of binary materials have been used to determine the lattice constant of the ternary alloy through interpolation
- Virtual crystal approximation (VCA) included
- Semi-empirical disorder contribution included
- Different energy valleys
- Local atomic pseudopotentials
- Band structures, reflectivity spectra, electronic densities of states, and valence charge densities

Benefits can be realized

- Binary (GaN, GaAs etc.) and ternary (AlGaN, InGaAs etc.)
- Users input lattice constant
- Full Electronic Energy Band
- Extraction of Velocity of carriers in different energy states
- Extraction of Effective Mass of carriers
- Parabolic & Nonparabolic bands effects
- Density of state (DOS) calculation
- Ability to deal with different cubic, Zincblende & Wurtzite alloys
- Carrier's position & energy on different Energy levels in full band

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