

Factorization Method In Quantum Mechanics

[DOWNLOAD HERE](#)

From the contents: PART I - Introduction. 1: Introduction. 1.1 Basic review. 1.2. Motivations and aims.- PART II Method. 2: Theory. 2.1. Introduction. 2.2. Formalism. 3: Lie Algebras $SU(2)$ and $SU(1,1)$. 3.1. Introduction. 3.2. Abstract groups. 3.3. Matrix representation. 3.4. properties of groups $SU(2)$ and $SO(3)$. 3.5. Properties of non-compact groups $SO(2,1)$ and $SU(1,1)$. 3.6. Generators of Lie groups $SU(2)$ and $SU(1,1)$. 3.7. Irreducible representations. 3.8. Irreducible unitary representations. 3.9. Concluding remarks.- PART III Applications in Non-Relativistic Quantum mechanics. 4: Harmonic Oscillator. 4.1. Introduction. 4.2. Exact solutions. 4.3. Ladder operators. 4.4. Bargmann-Segal transformations. 4.5. Single mode realization of dynamic group $SU(1,1)$. 4.6. Matrix elements. 4.7. Coherent states. 4.8. Franck-Condon factors. 4.9. Concluding remarks. 5: Infinitely Deep Square-Well Potential. 5.1. Introduction. 5.2. Ladder operators for infinitely deep square-well potential. 5.3. Realization of dynamic group $SU(1,1)$ and matrix elements. 5.4. Ladder operators for infinitely deep symmetric well potential. 5.5. SUSYQM approach to infinitely deep square-well potential. 5.6. Perelomov coherent states. 5.7. Barut-Girardello coherent states. 5.8. Concluding remarks. 6: Morse Potential. 6.1. Introduction. 6.2. Exact solutions. 6.3. Ladder operators for the Morse potential. 6.4. Realization of dynamic group $SU(2)$. 6.5. Matrix elements. 6.6. Harmonic limit. 6.7. Franck-Condon factors. 6.8. Transition probability. 6.9. Realization of dynamic group $SU(1,1)$. 6.10. Concluding remarks. 7: Pöschl-Teller Potential. 7.1. Introduction. 7.2. Exact solutions. 7.3. Ladder operators. 7.4. Realization of dynamic group $SU(2)$. 7.5. Alternative approach to derive ladder operators. 7.6. Harmonic limit. 7.7. Expansions of the coordinate x and momentum p from the $SU(2)$ generators. 7.8. Concluding remarks. 8: Pseudoharmonic Oscillator. 8.1. Introduction. 8.2. Exact solutions in one dimension. 8.3. Ladder operators. 8.4. Barut-Girardello coherent states. 8.5. Thermodynamic properties. 8.6. Pseudoharmonic oscillator in arbitrary dimensions. 8.7. Recurrence relations among matrix elements. 8.8. Concluding remarks. 9: Algebraic Approach to an Electron in a Uniform Magnetic Field. 9.1. Introduction. 9.2. Exact solutions. 9.3. Ladder operators. 9.4. Concluding remarks. 10: Ring-Shaped Non-Spherical Oscillator. 10.1. Introduction. 10.2. Exact solutions. ... EAN/ISBN : 9781402057960 Publisher(s): Springer Netherlands Format: ePub/PDF Author(s): Dong,

Shi-Hai

[DOWNLOAD HERE](#)

Similar manuals: