=== Hydrogen Atom QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.8)**
n range: 0.0 to 24.0 (step: 0.01)
Resonance states found: 82

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 62 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0]

Prediction accuracy: 6/6 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9

16.0 -> 15
25.0 -> 23
36.0 -> 33

=== Helium (He) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.5)**
n range: 0.0 to 24.0 (step: 0.001)
Resonance states found: 96

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 76 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0]

Prediction accuracy: 8/8 states matched

Matched states (observed, predicted):
  1.0 -> 1
  4.0 -> 4
  9.0 -> 9
  16.0 -> 15
  25.0 -> 23
  36.0 -> 33
  49.0 -> 45
64.0 -> 58

=== Lithium (Li) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.6)**
n range: 0.0 to 24.0 (step: 0.001)
Resonance states found: 82

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19

State 20: 21
... and 62 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0]

Prediction accuracy: 9/9 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 75

=== Beryllium (Be) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.8)**
n range: 0.0 to 24.0 (step: 0.001)
Resonance states found: 84

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12

State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 64 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0]

Prediction accuracy: 10/10 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91

=== Boron (B) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.8)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 331

State 1: 1
State 2: 2
State 3: 3
State 4: 4

State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 311 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0]

Prediction accuracy: 11/11 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91
121.0 -> 109

=== Carbon (C) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300

HQS: 0.2467366240
Resonance function: quantum_cos(0.8)
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 434

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 414 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0]

Prediction accuracy: 12/12 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45

64.0 -> 58
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 130

=== Nitrogen (N) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.8)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 331

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 311 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0]

Prediction accuracy: 13/13 states matched

Matched states (observed, predicted):

1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 135
169.0 -> 153

=== Oxygen (O) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.8)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 331

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12

State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 311 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0]

Prediction accuracy: 14/14 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 135
169.0 -> 153
196.0 -> 177

=== Fluorine (F) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.9)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 339

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 319 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0, 225.0]

Prediction accuracy: 15/15 states matched

Matched states (observed, predicted):

1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 34
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91

121.0 -> 109
144.0 -> 130
169.0 -> 153
196.0 -> 182
225.0 -> 203

=== Neon (Ne) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.9)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 339

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 319 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0, 225.0, 256.0]

Prediction accuracy: 16/16 states matched

Matched states (observed, predicted):

1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 34
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 130
169.0 -> 153
196.0 -> 182
225.0 -> 203
256.0 -> 231

=== Sodium (Na) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(1.0)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 342

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7

State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 322 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0, 225.0, 256.0, 289.0]

Prediction accuracy: 17/17 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 24
36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 74
100.0 -> 91
121.0 -> 109
144.0 -> 131
169.0 -> 158
196.0 -> 177
225.0 -> 203
256.0 -> 231
289.0 -> 261

=== Magnesium (Mg) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(1.05)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 337

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 317 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0, 225.0, 256.0, 289.0, 324.0]

Prediction accuracy: 18/18 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4

9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 60
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 130
169.0 -> 153
196.0 -> 178
225.0 -> 203
256.0 -> 231
289.0 -> 261
324.0 -> 292

=== Aluminum (Al) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(1.1)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 348

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12

State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 328 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0, 225.0, 256.0, 289.0, 324.0, 361.0]

Prediction accuracy: 19/19 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 59
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 130
169.0 -> 153
196.0 -> 177
225.0 -> 203
256.0 -> 237
289.0 -> 261
324.0 -> 292
361.0 -> 334

=== Silicon (Si) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1

LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(1.15)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 436

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 416 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0, 225.0, 256.0, 289.0, 324.0, 361.0, 400.0]

Prediction accuracy: 20/20 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23

36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 130
169.0 -> 153
196.0 -> 177
225.0 -> 203
256.0 -> 231
289.0 -> 261
324.0 -> 292
361.0 -> 325
400.0 -> 361

=== Phosphorus (P) QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **cos(1.2)**
n range: 0.0 to 32.0 (step: 0.001)
Resonance states found: 436

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13

State 14: 14
State 15: 15
State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 416 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0, 49.0, 64.0, 81.0, 100.0, 121.0, 144.0, 169.0, 196.0, 225.0, 256.0, 289.0, 324.0, 361.0, 400.0, 441.0]

Prediction accuracy: 21/21 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 23
36.0 -> 33
49.0 -> 45
64.0 -> 58
81.0 -> 73
100.0 -> 91
121.0 -> 109
144.0 -> 130
169.0 -> 153
196.0 -> 177
225.0 -> 203
256.0 -> 231
289.0 -> 261
324.0 -> 292
361.0 -> 325
400.0 -> 361
441.0 -> 397

=== Quantum Harmonic Oscillator QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.8)**
n range: 0.0 to 20.0 (step: 0.001)
Resonance states found: 0

Observed states: [0.5, 1.5, 2.5, 3.5, 4.5, 5.5]

Prediction accuracy: 0/6 states matched (Not Natural Resonance found)

=== Particle in a Box QUANTUM RESONANCE ANALYSIS ===

Using constants: LZ_1
LZ: 1.2093504300
HQS: 0.2467366240
Resonance function: **quantum_cos(0.7)**
n range: 0.0 to 20.0 (step: 0.001)
Resonance states found: 41

State 1: 1
State 2: 2
State 3: 3
State 4: 4
State 5: 5
State 6: 6
State 7: 7
State 8: 8
State 9: 9
State 10: 10
State 11: 11
State 12: 12
State 13: 13
State 14: 14
State 15: 15

State 16: 16
State 17: 17
State 18: 18
State 19: 19
State 20: 20
... and 21 more states

Observed states: [1.0, 4.0, 9.0, 16.0, 25.0, 36.0]

Prediction accuracy: 6/6 states matched
Matched states (observed, predicted):
1.0 -> 1
4.0 -> 4
9.0 -> 9
16.0 -> 15
25.0 -> 24
36.0 -> 33