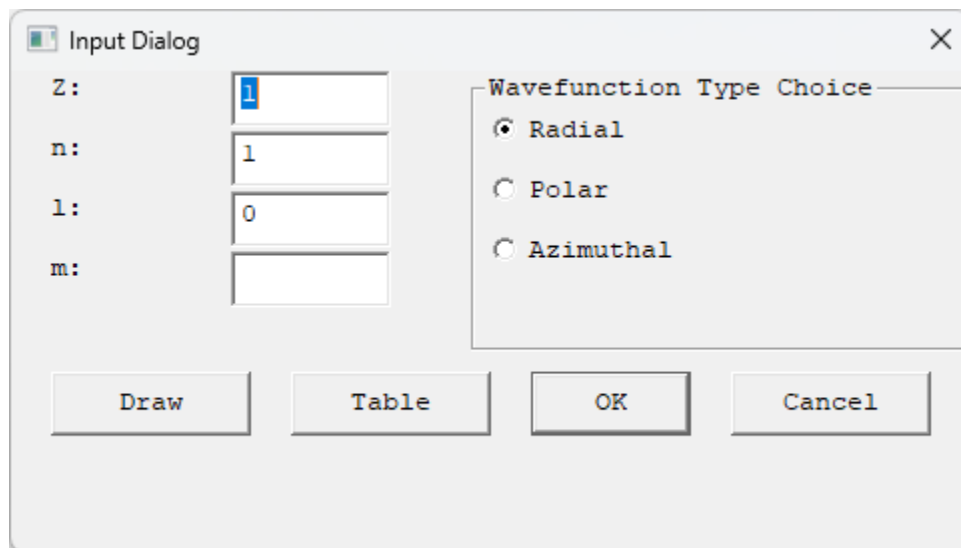


Blog Entry © Tuesday, April 7, 2026, by James Pate Williams, Jr., Hydrogen-like Atom Polar and Azimuthal Wavefunctions

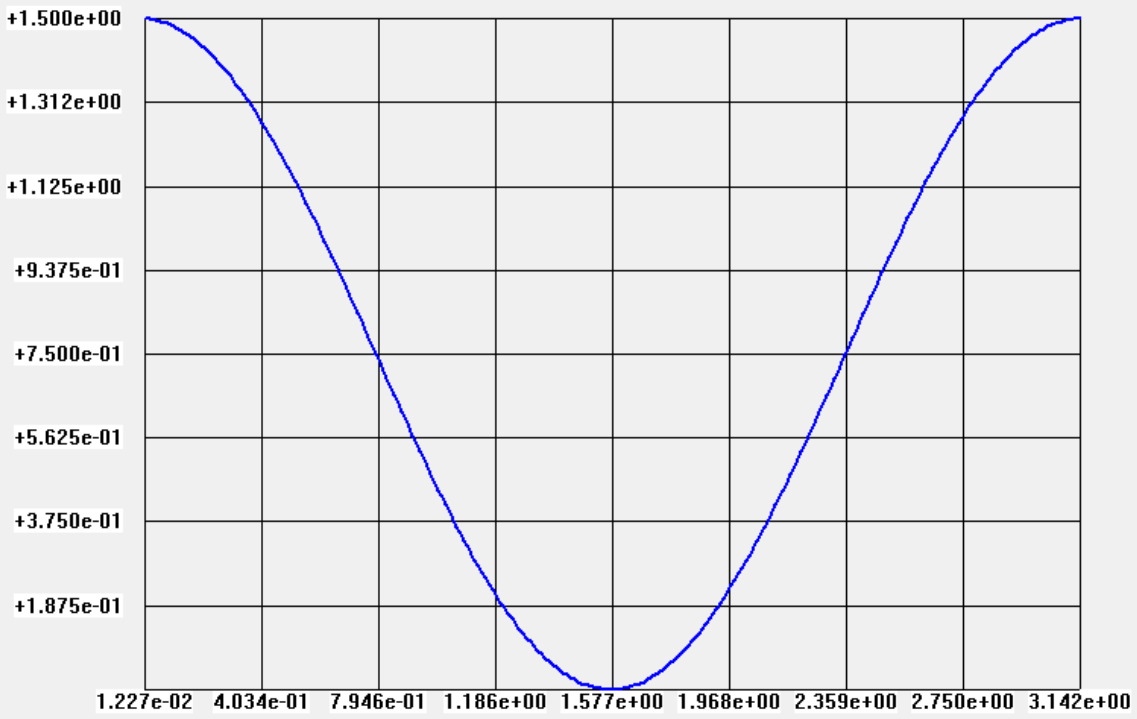
References: ***Introduction to Quantum Mechanics with Applications to Chemistry*** by Linus Pauling and Edgar Bright Wilson See Tables in Chapter 21

[https://sibor.physics.tamu.edu/wp-content/uploads/sites/15/2021/03/lecture\\_11-chapter7HydrogenAtom-2new.pdf](https://sibor.physics.tamu.edu/wp-content/uploads/sites/15/2021/03/lecture_11-chapter7HydrogenAtom-2new.pdf)

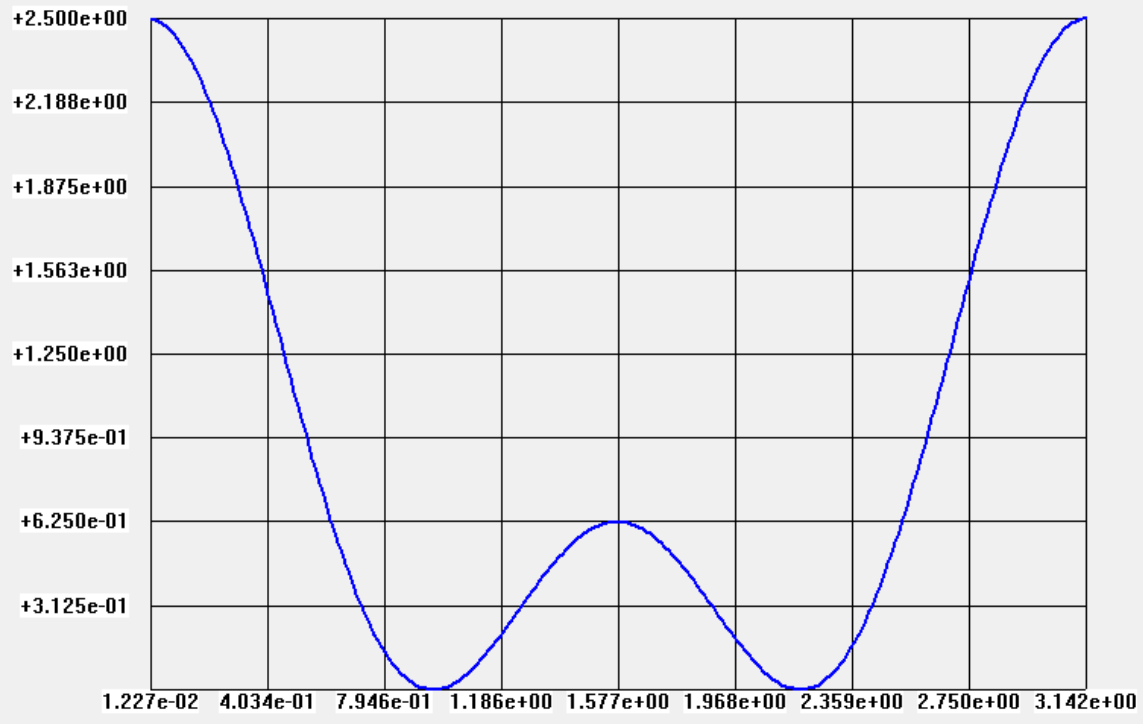


The image shows a software dialog box titled "Input Dialog" with a close button (X) in the top right corner. On the left side, there are four input fields labeled "Z:", "n:", "l:", and "m:". The "Z:" field contains the number "1", "n:" contains "1", and "l:" contains "0". The "m:" field is empty. On the right side, there is a section titled "Wavefunction Type Choice" with three radio button options: "Radial" (which is selected), "Polar", and "Azimuthal". At the bottom of the dialog, there are four buttons: "Draw", "Table", "OK", and "Cancel".

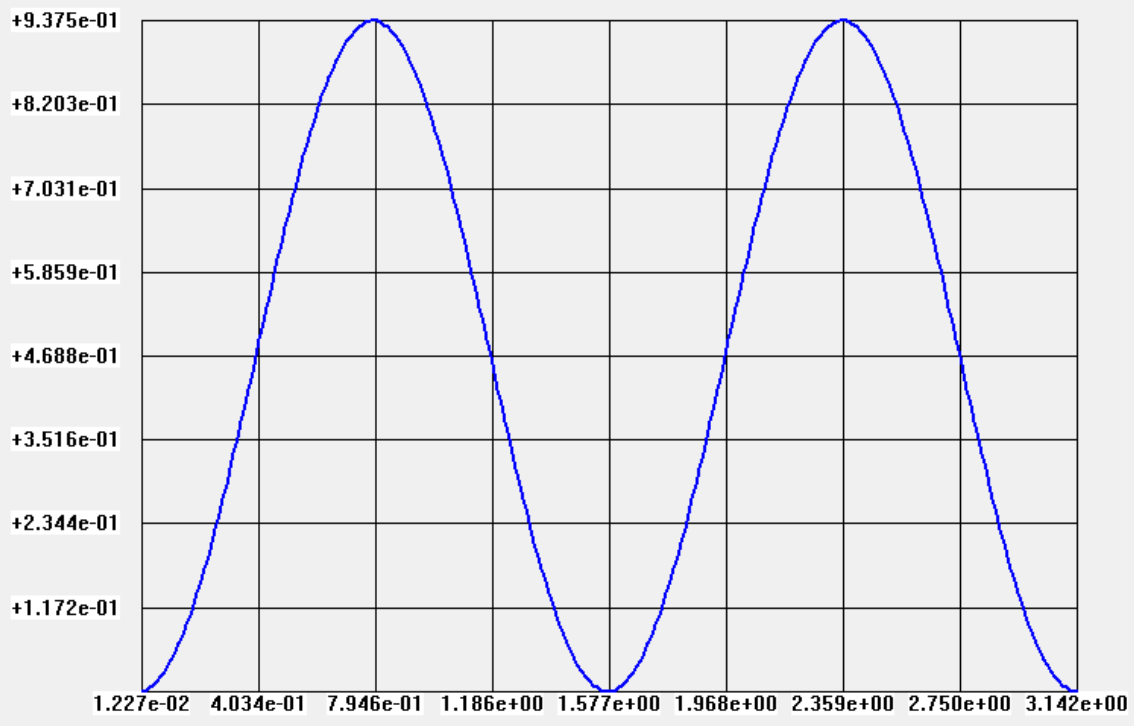
Polar Distribution  $l = 1, m = 0$



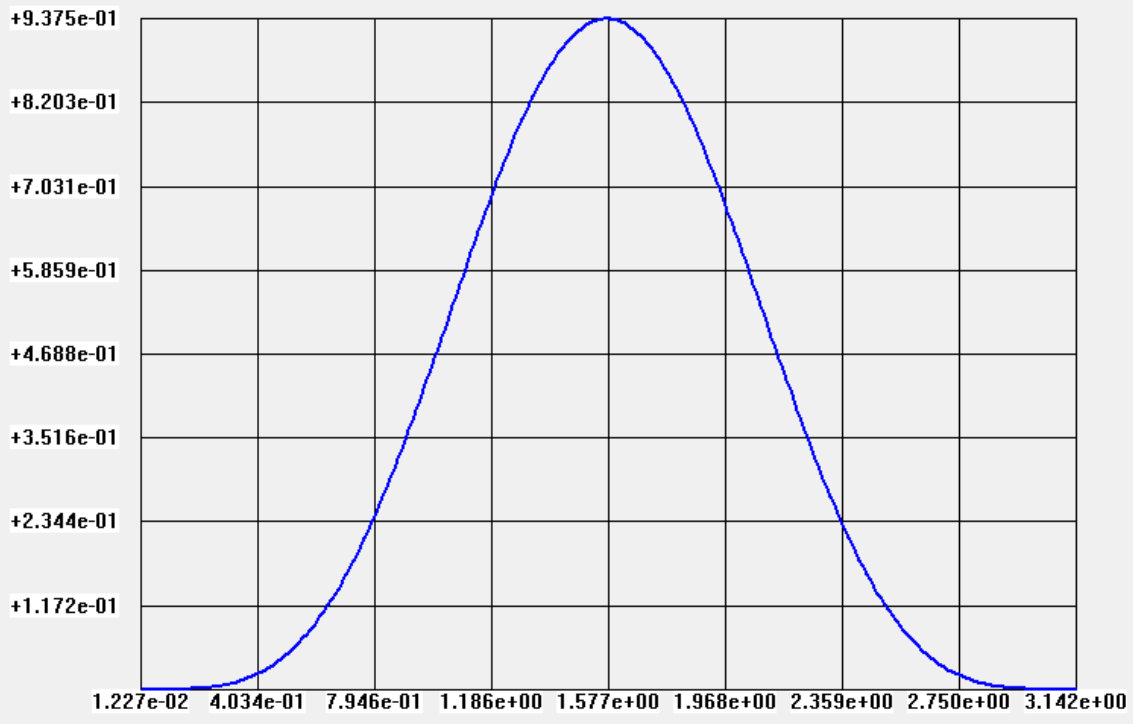
Polar Distribution  $l = 2, m = 0$



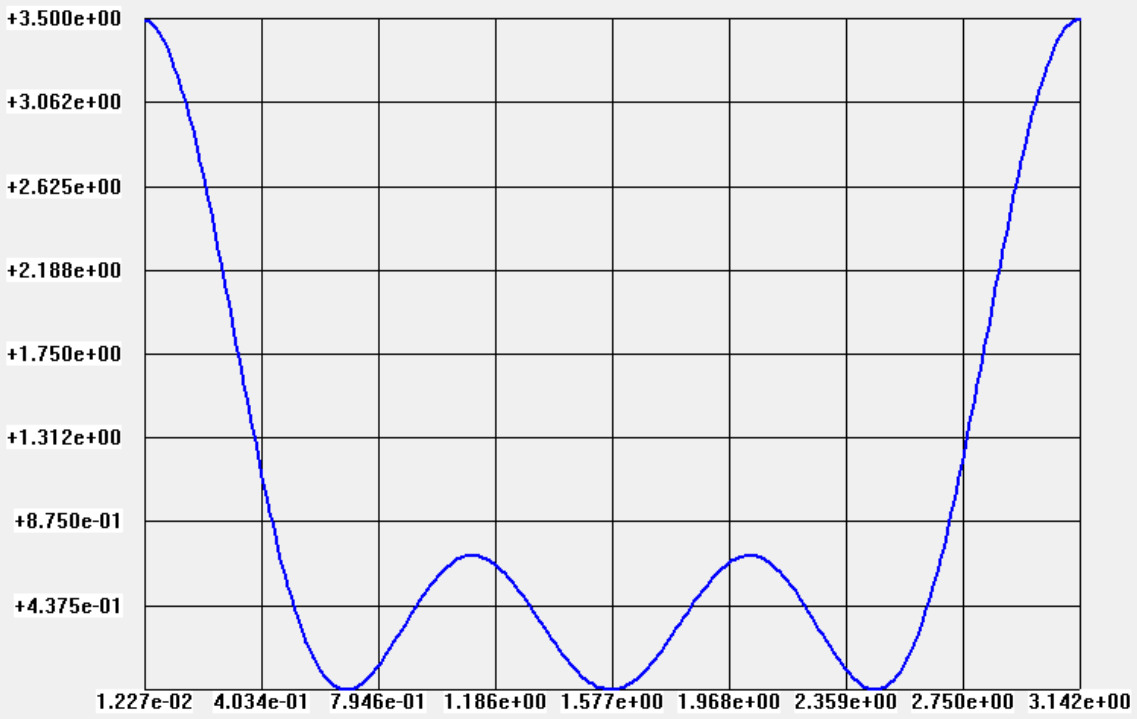
Polar Distribution  $l = 2, m = 1$



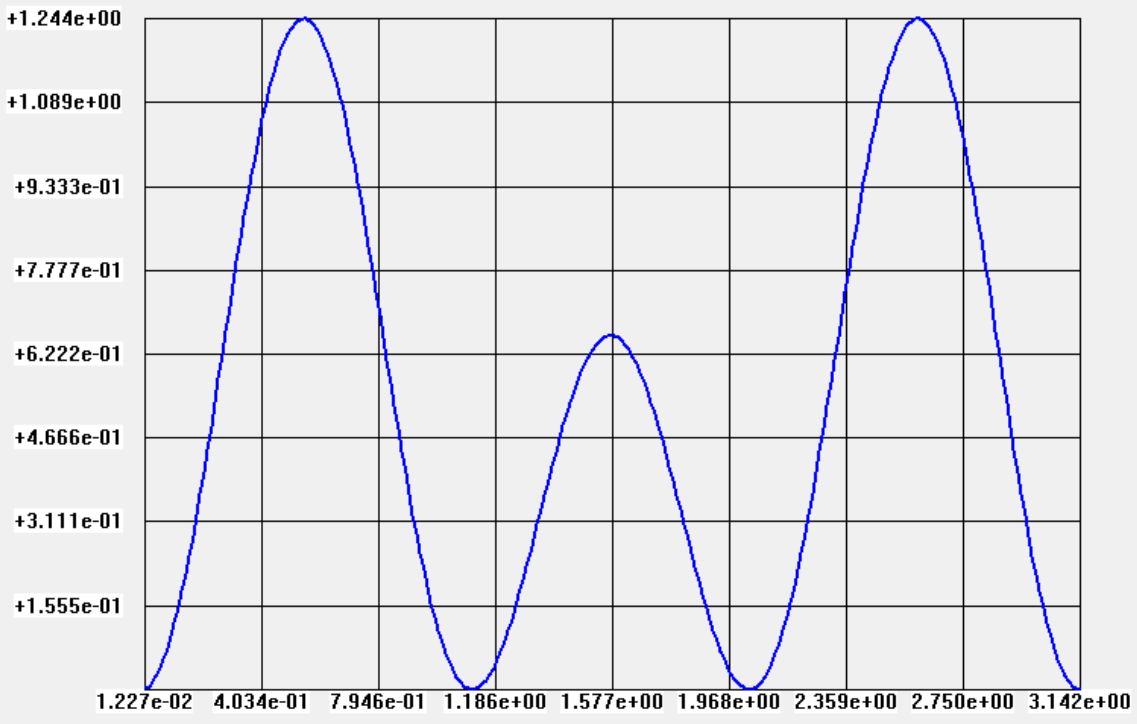
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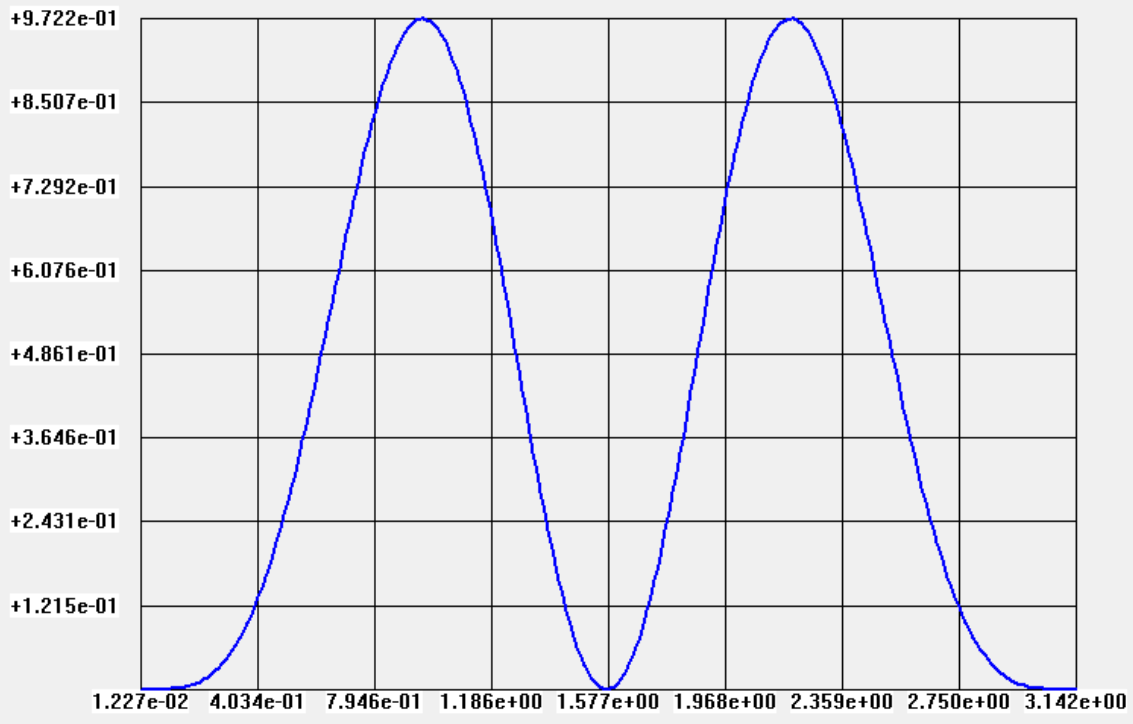
Polar Distribution  $l = 3, m = 0$



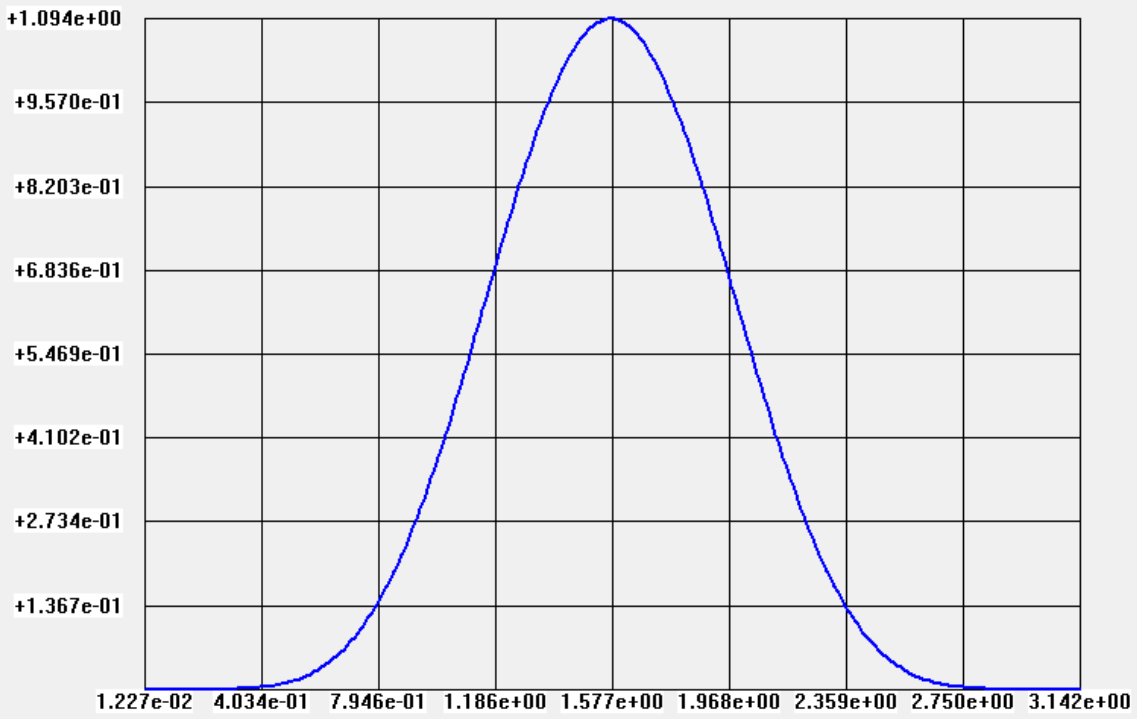
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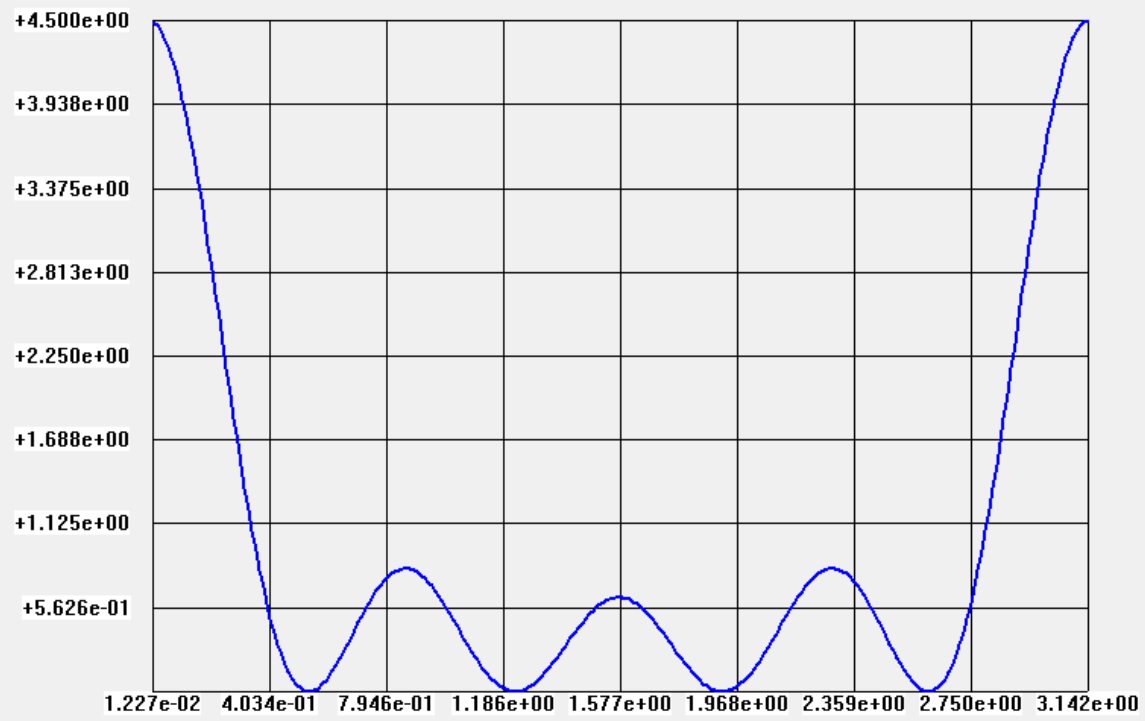
Polar Distribution  $l = 3, m = 2$



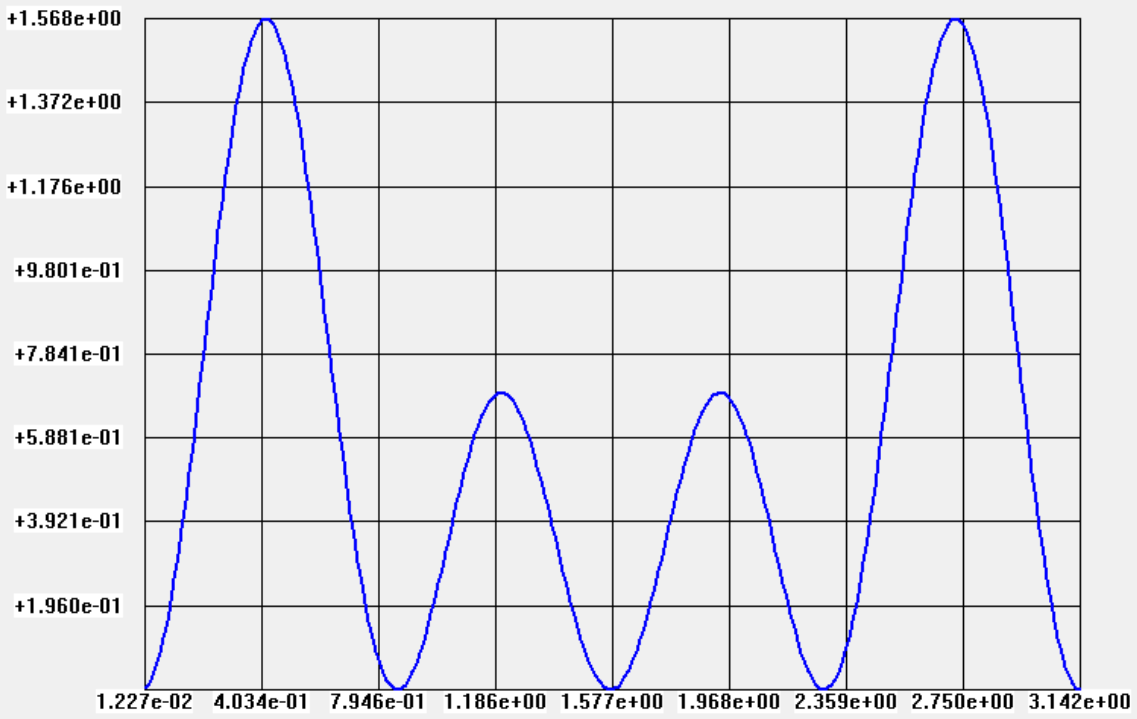
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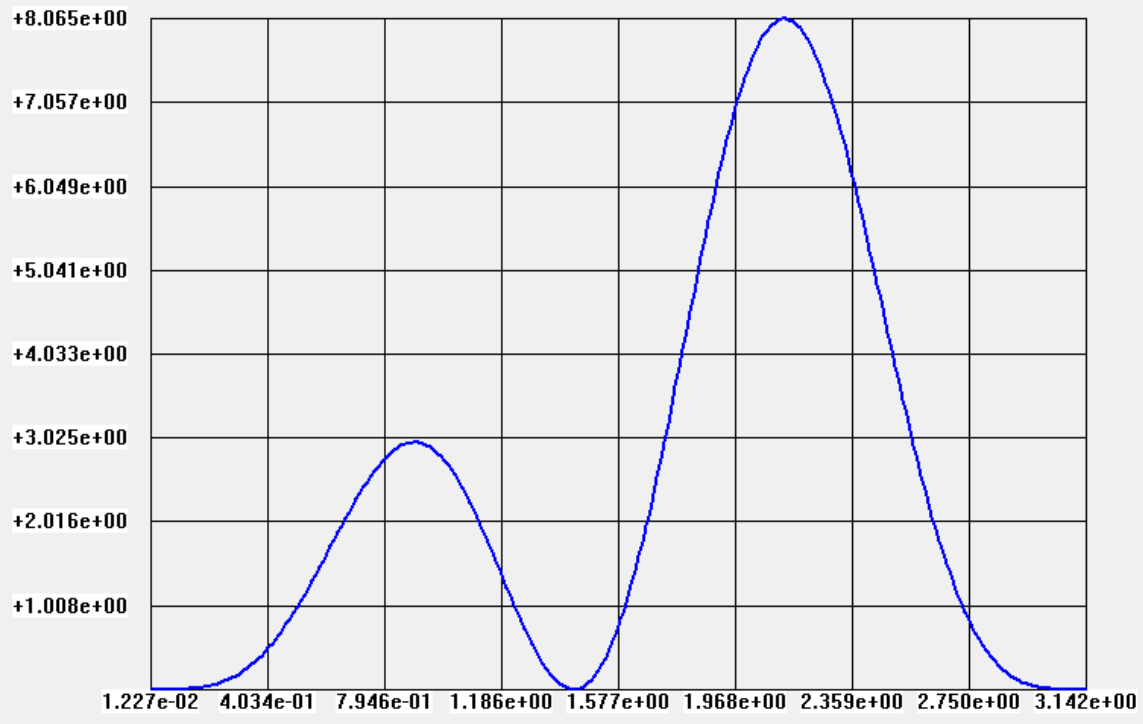
Polar Distribution  $l = 4, m = 0$



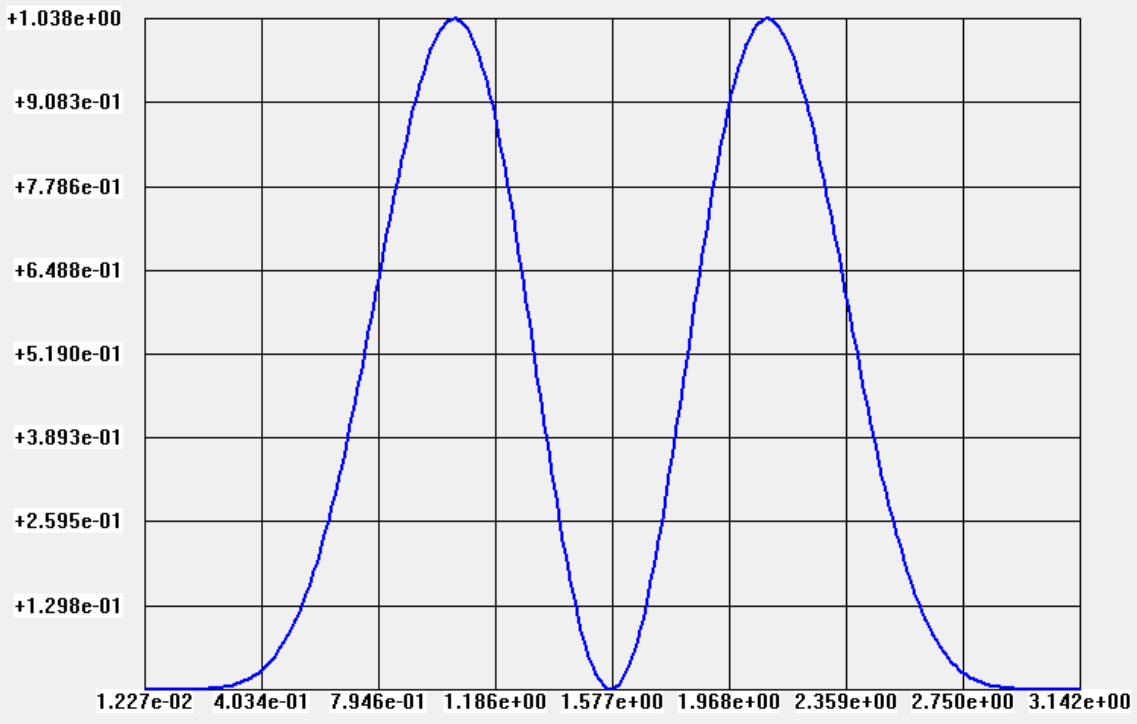
Polar Distribution  $l = 4$   $m = 1$



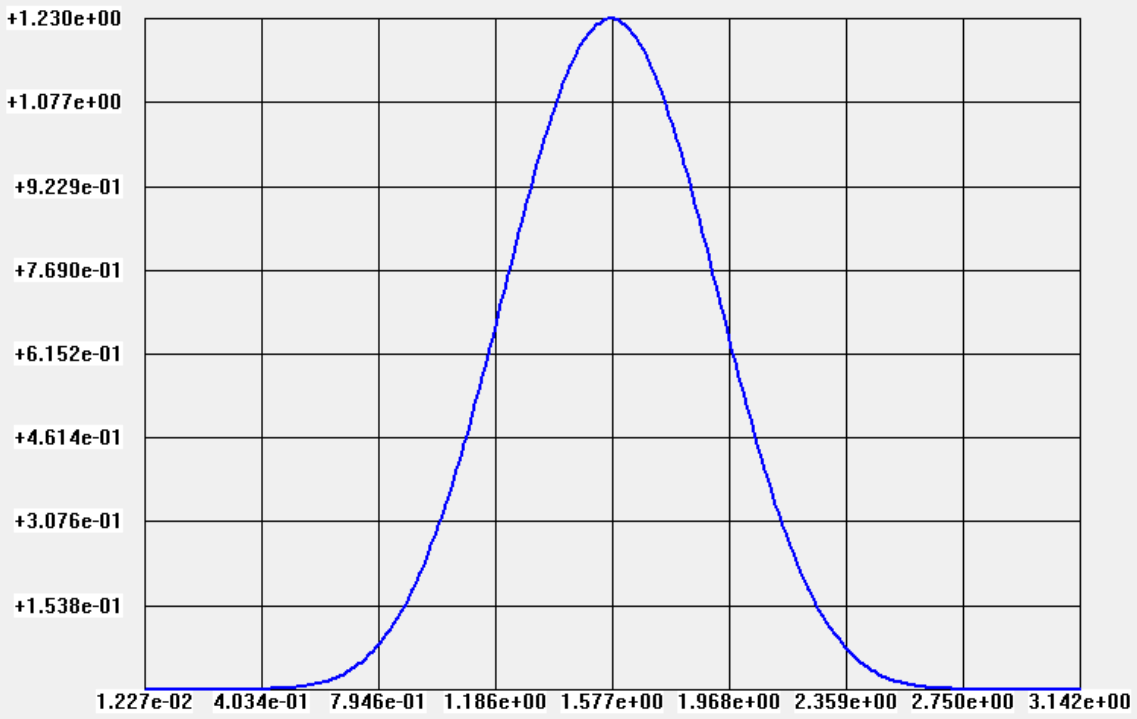
Polar Distribution  $l = 4, m = 2$



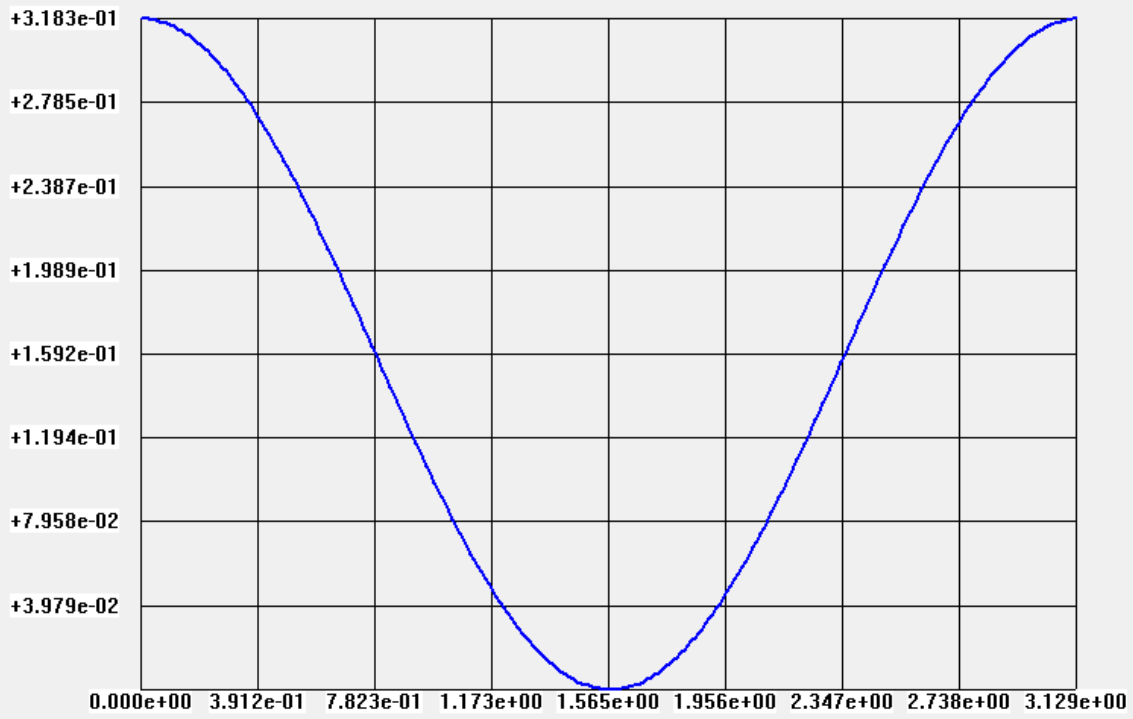
Polar Distribution  $l = 4$   $m = 3$



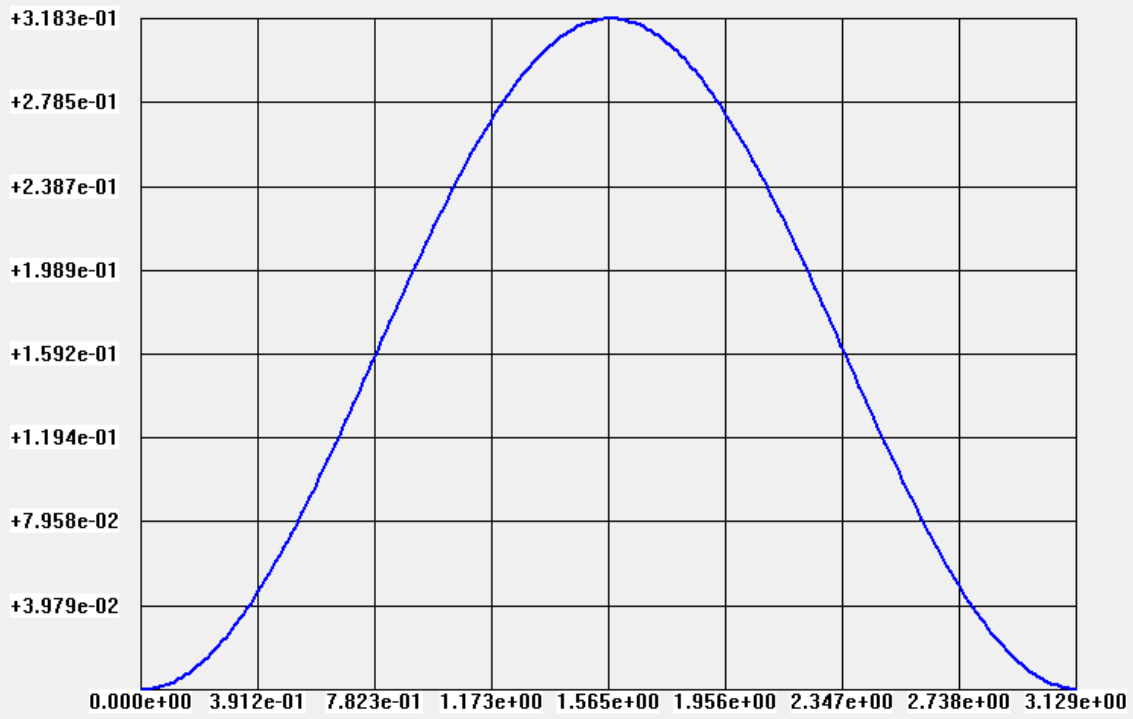
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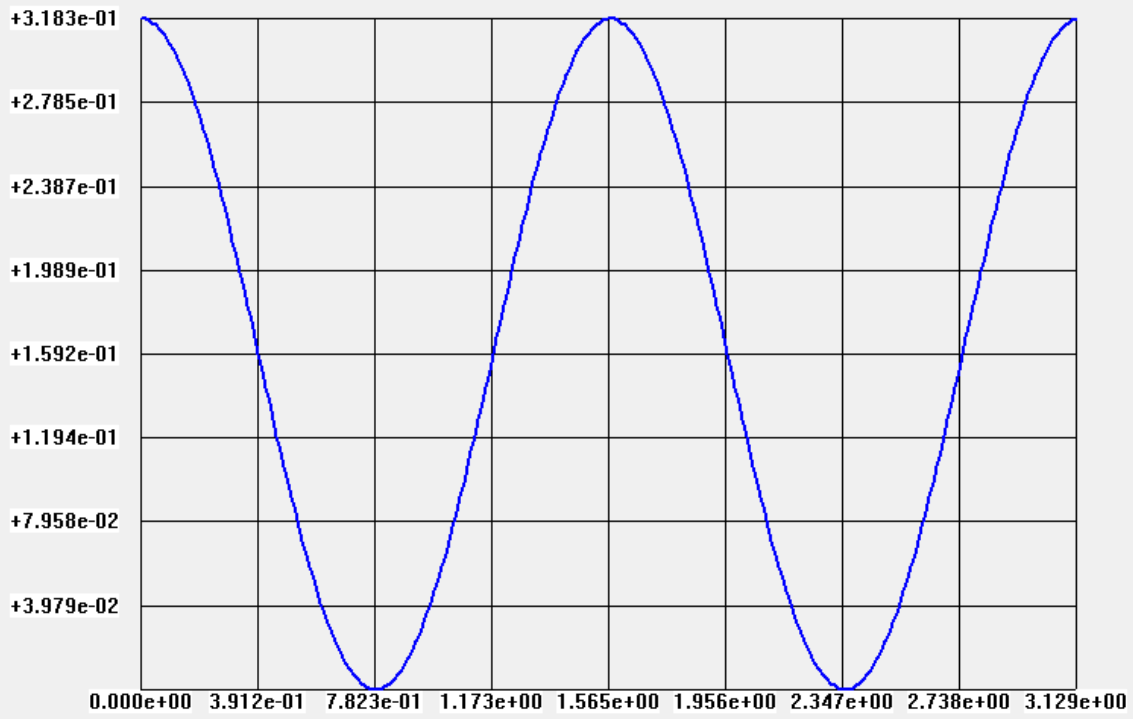
Azimuthal Distribution  $m = 1$



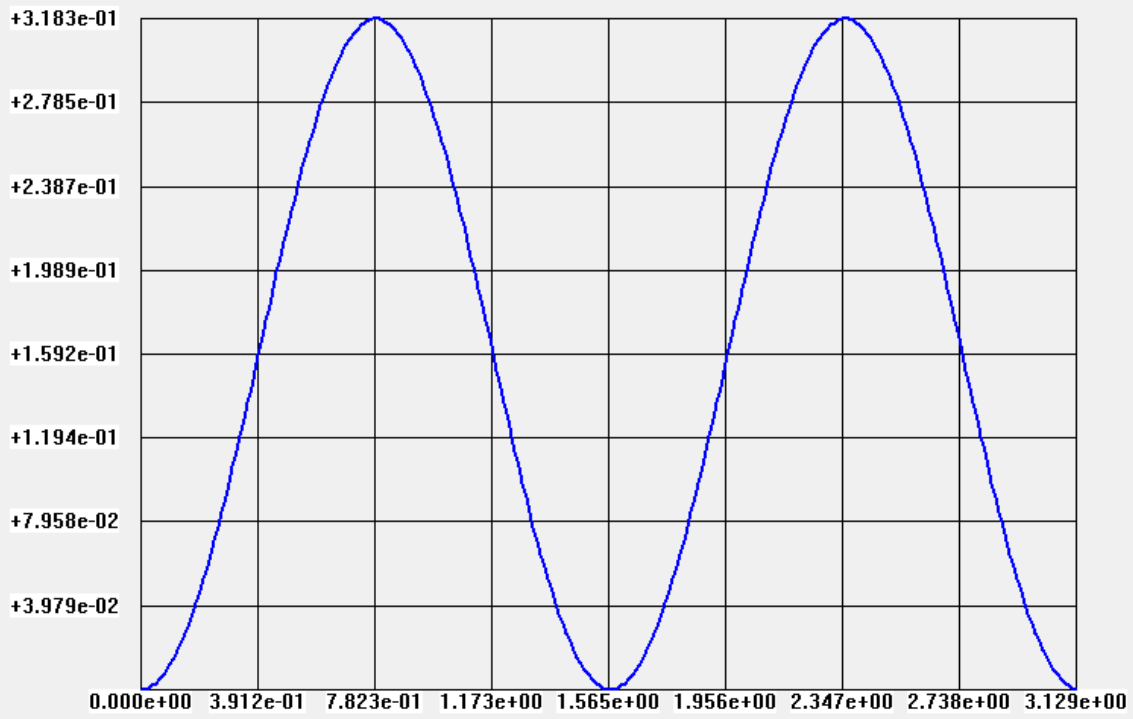
Azimuthal Distribution  $m = -1$



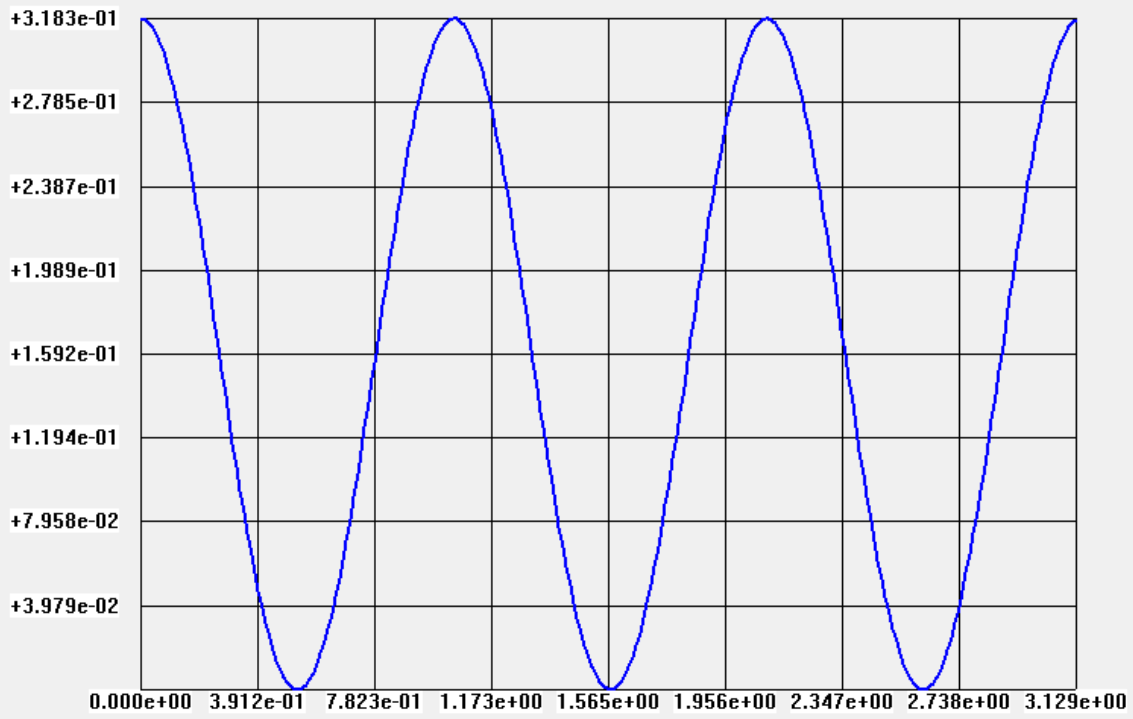
Azimuthal Distribution  $m = 2$



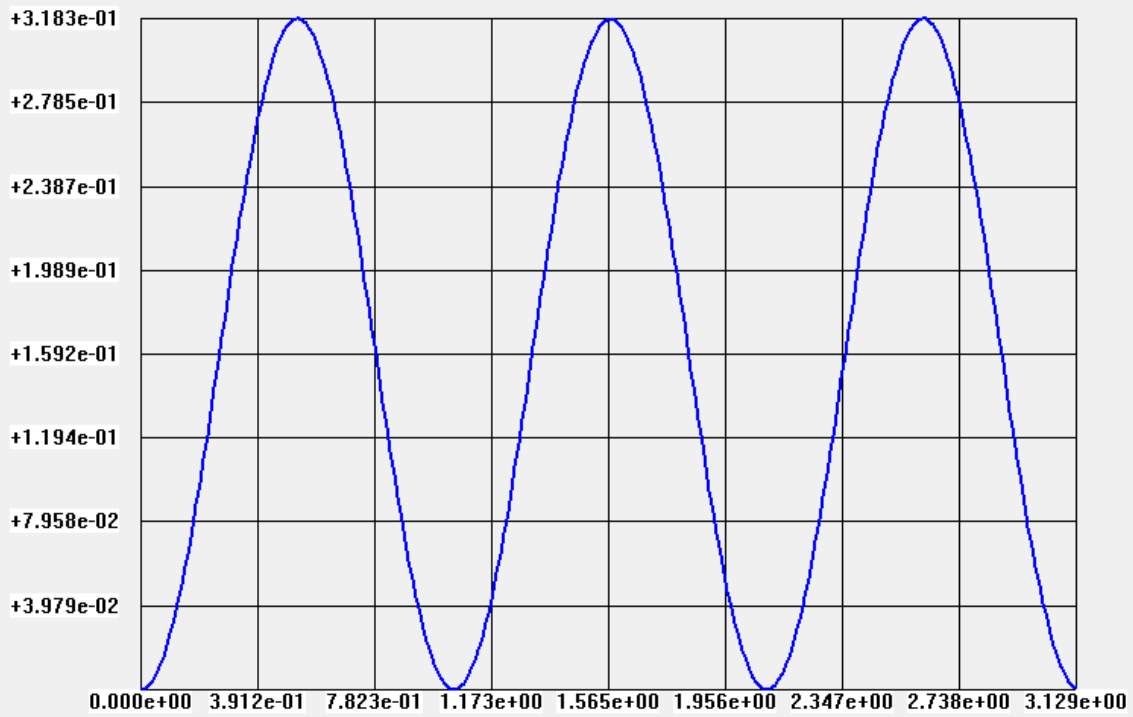
Azimuthal Distribution  $m = -2$



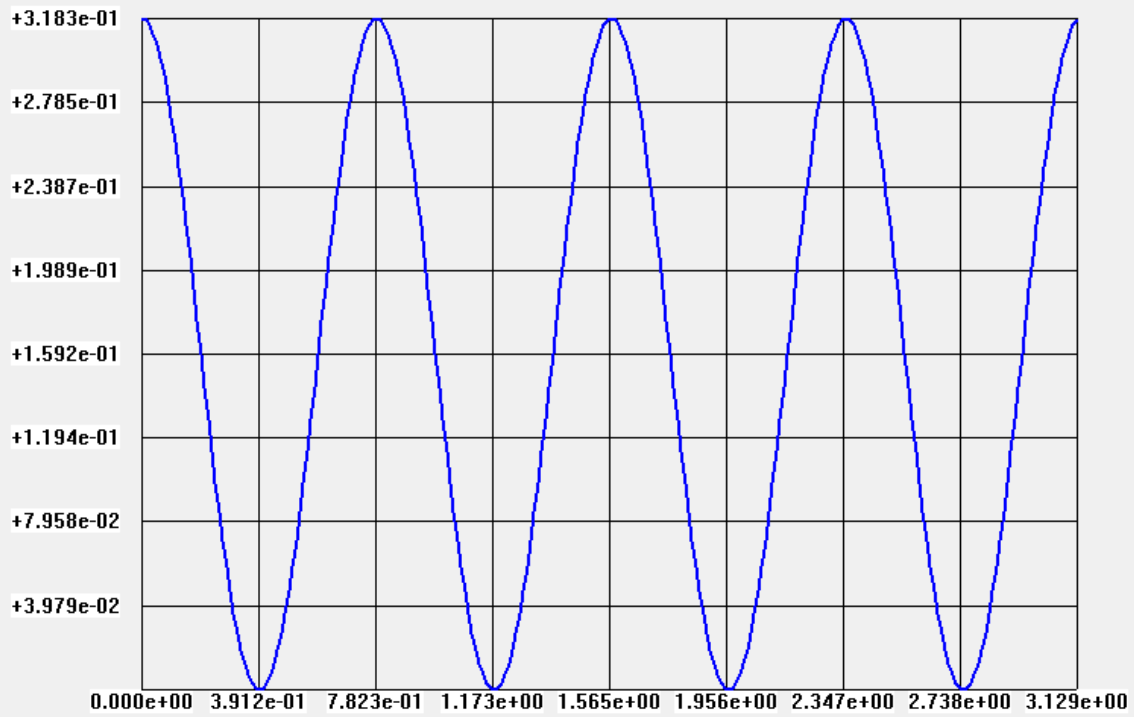
Azimuthal Distribution  $m = 3$



Azimuthal Distribution  $m = -3$



Azimuthal Distribution  $m = 4$



Azimuthal Distribution  $m = -4$

