

Kepler orbits vs Bohr energy levels: How far the analogy goes?

by **Tekin Dereli** (Koç University)

ITU Physics Department Seminar, Wednesday November 6, 2024.

Abstract: Newton's universal law of gravitation explains Kepler's planetary orbits. The same inverse-squared force law governs the Coulomb attraction between an electron and a proton that make up a H-atom. The solution of the corresponding reduced 2-body Schrödinger equation gives rise to Bohr energy levels. I wish to point out very briefly the amazingly rich mathematical structure that follows from this simple analogy. At the end I am going to comment on our recent work on the analogy between the Landau problem and the 2D H-atom. [T.Dereli,P.Nounohan,T.Popov,Universe**10**(2024)172]