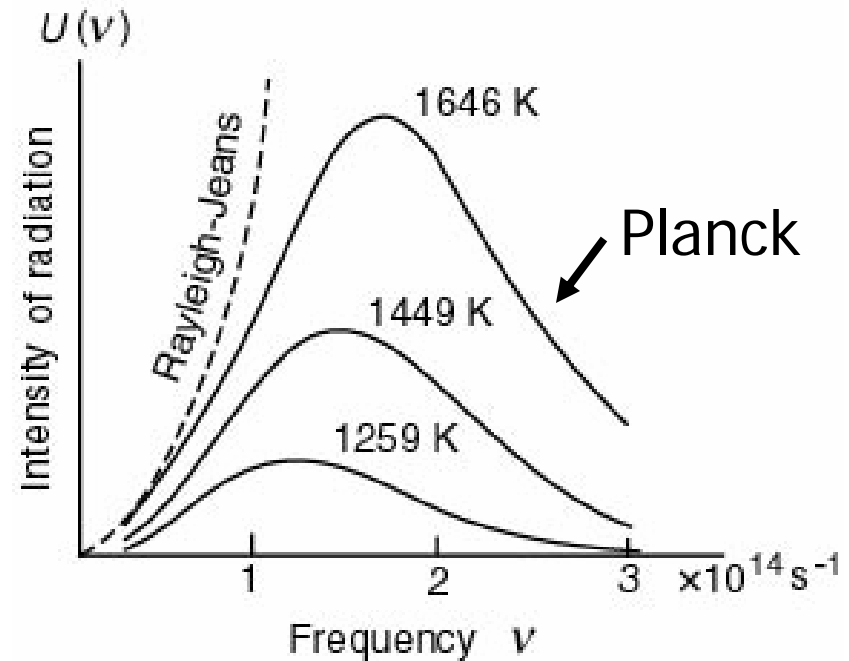


# Black Body Radiation

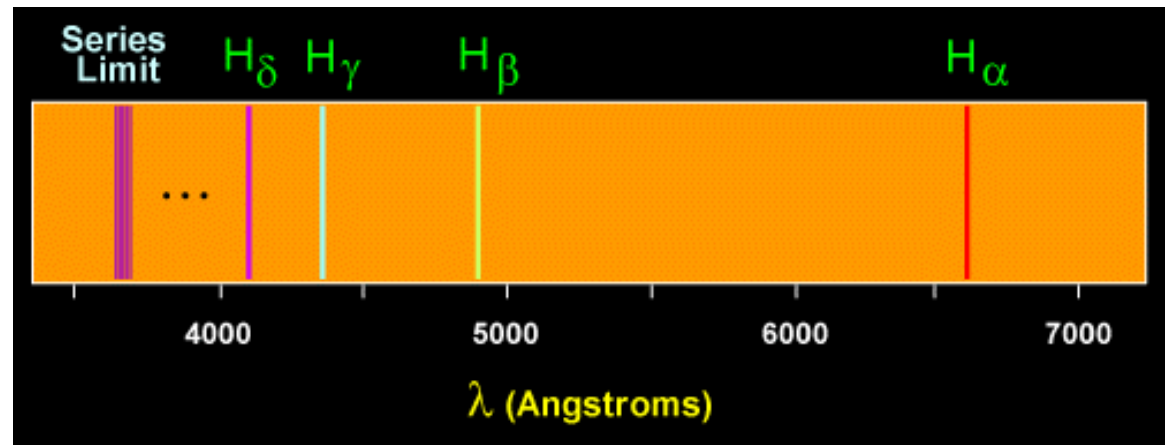
- Rayleigh & Jeans:  
Classical  
thermodynamics &  
statistical mechanics
- Max Planck: energy in  
discreet packets



# Balmer Series

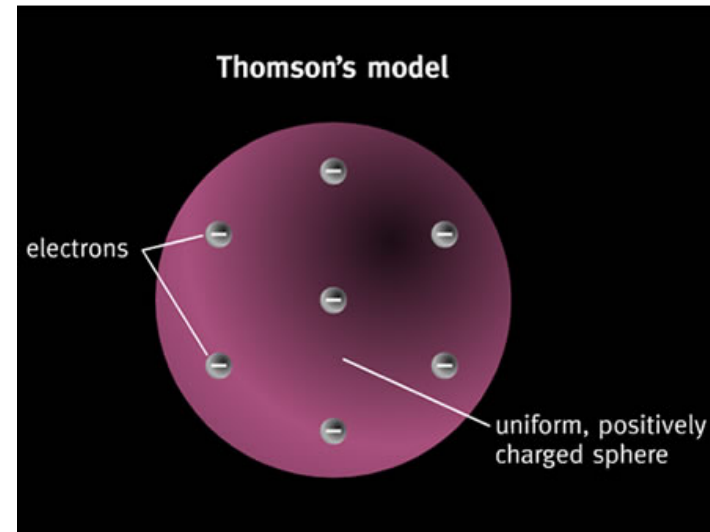
- Johann Jacob Balmer who (in 1885) found a series that fits wavelengths of the set of four emission lines ( $H\alpha$ ,  $H\beta$ ,  $H\gamma$ ,  $H\delta$ ) from hydrogen

$$\nu_n = cR \left( \frac{1}{2^2} - \frac{1}{n^2} \right)$$

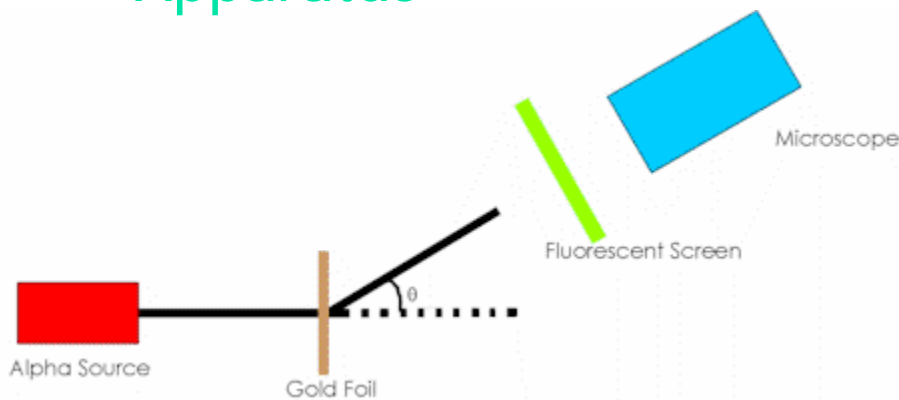


# Rutherford Scattering

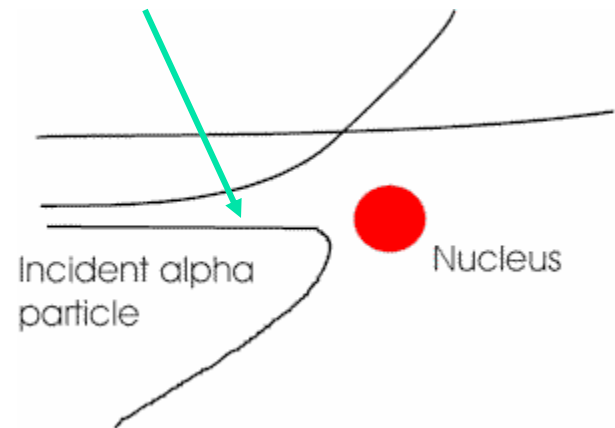
- Thompson model of the Atom
- In 1911 Rutherford showed that the positive charge was clustered in the center of the atom and not distributed



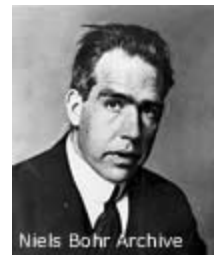
## Apparatus



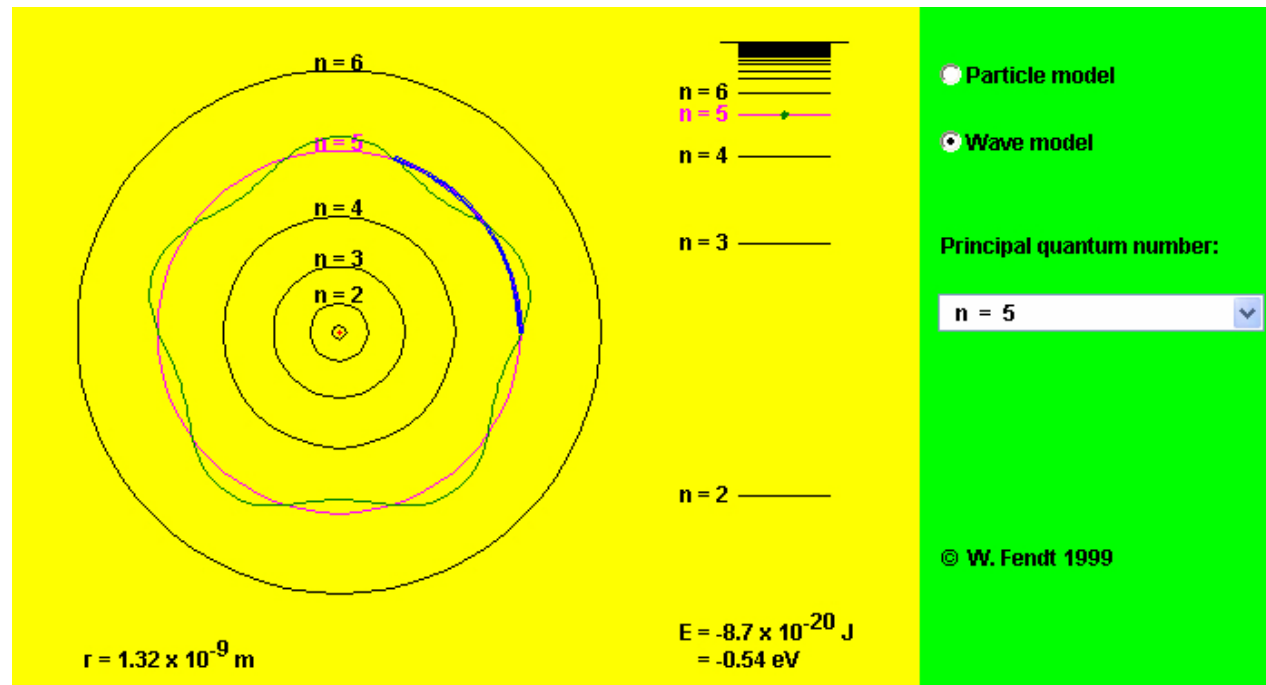
## What he shouldn't have seen



# The Bohr Picture



- Best way to view atom is that the electron “wave” must fit into orbit an integral number of times:  
(<http://www.walter-fendt.de/ph11e/bohrh.htm>)





# Useful Information

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- From now on, we will meet in B126
- Course web page:  
<http://physics.syr.edu/courses/PHY567-07/index.html>
- My office is 329, hours: Generally, Monday & Wed. 3-4 pm, but you can either make an appointment or drop by at other times

# Probability – Discrete Variables

- Example age distribution: 14, 15, 16, 16, 16, 22, 22, 24, 24, 25, 25, 25, 25, 25

- Histogram of Data

14 total people

