



TELECLASS

Lesson: RADIOACTIVITY

Subject: PHYSICS

Department of Physics

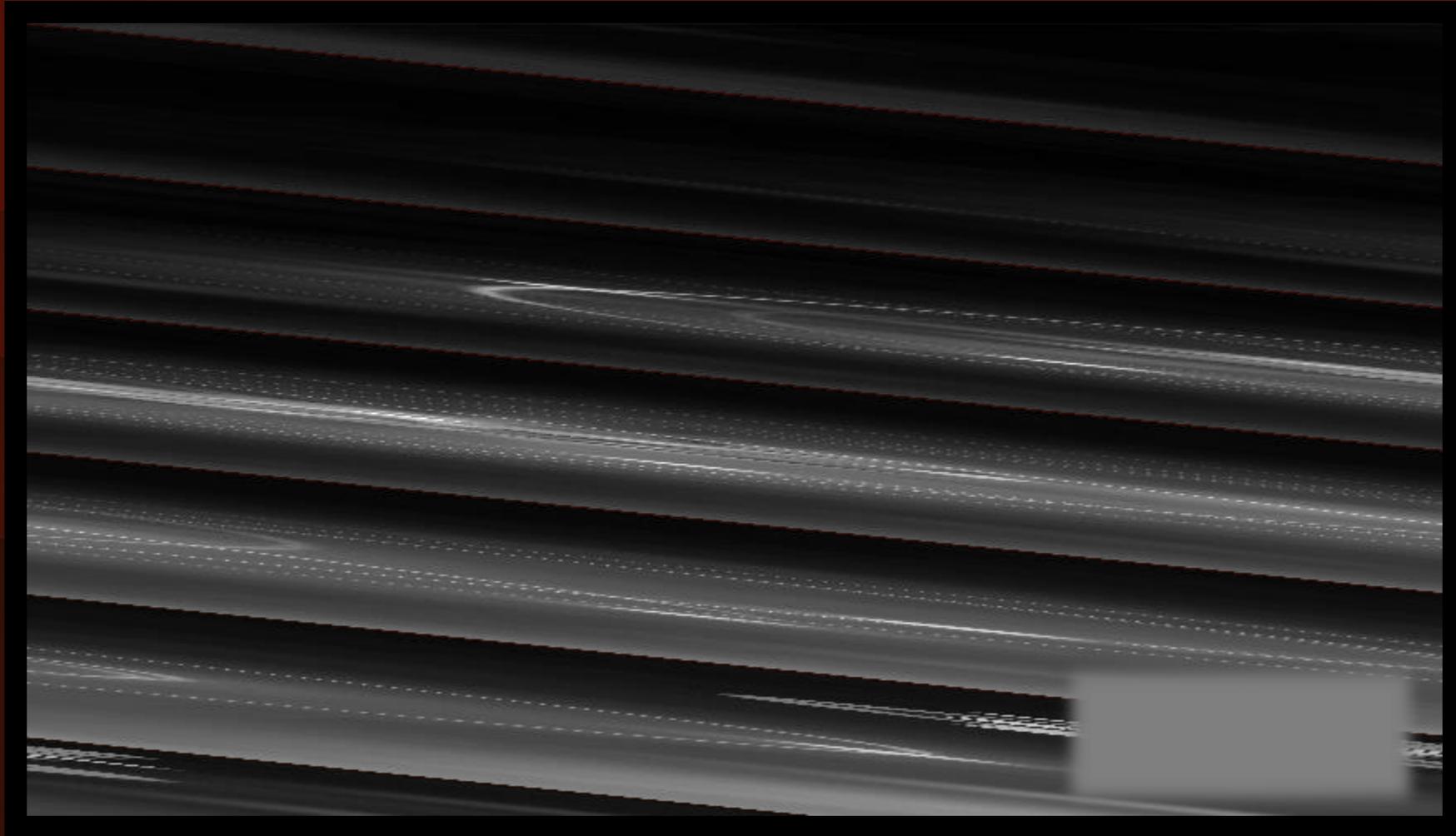
Iskandhar School

Objectives

- Discuss the random nature of radioactive emission
- Identify α , β and γ -emissions by recalling
 - their nature
 - their relative ionising effects
 - their relative penetrating abilities
- Demonstrate understanding of back ground radiation
- Describe the detection of α -particles, β -particles and γ -rays



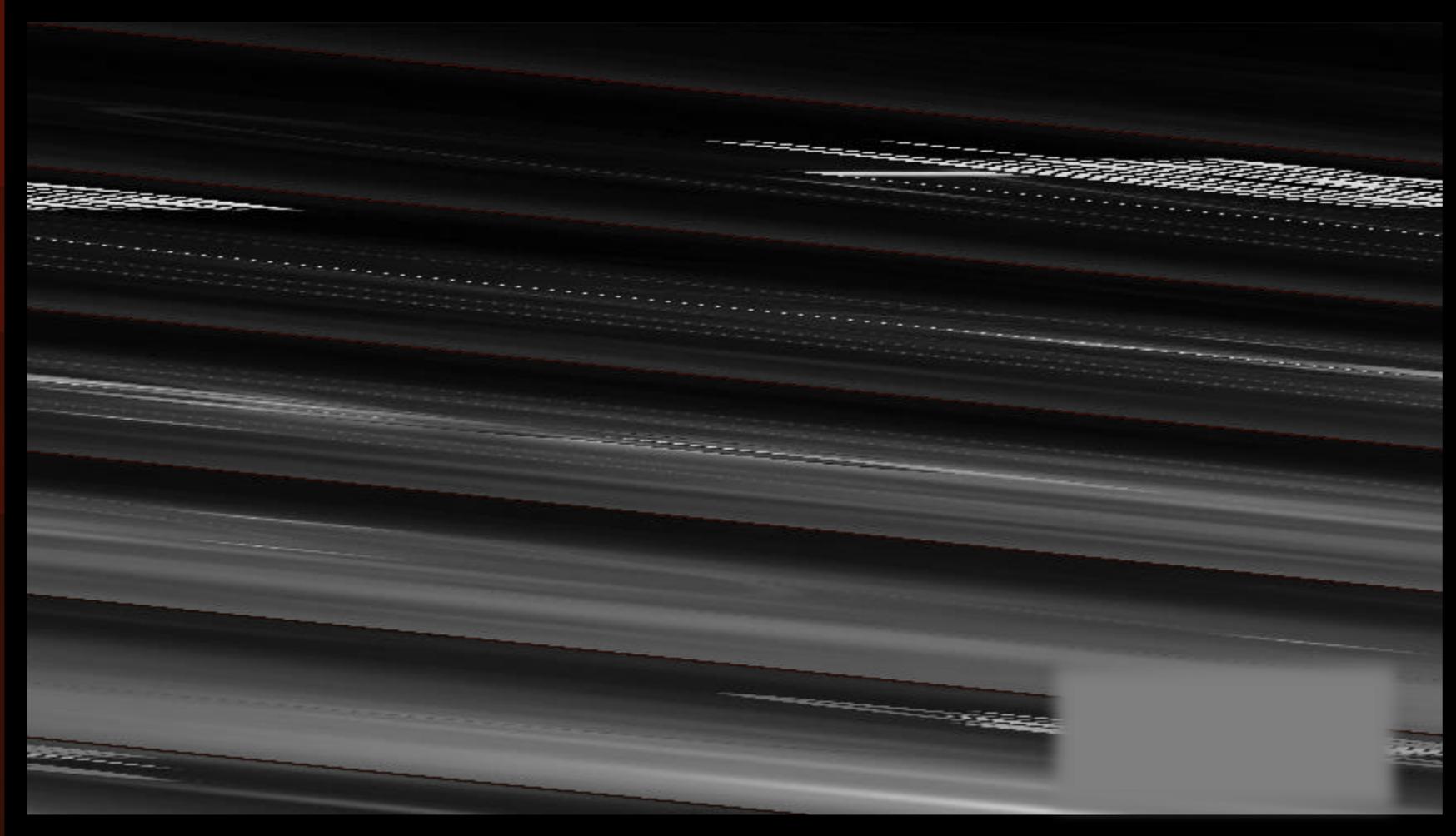
Atoms



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Atoms

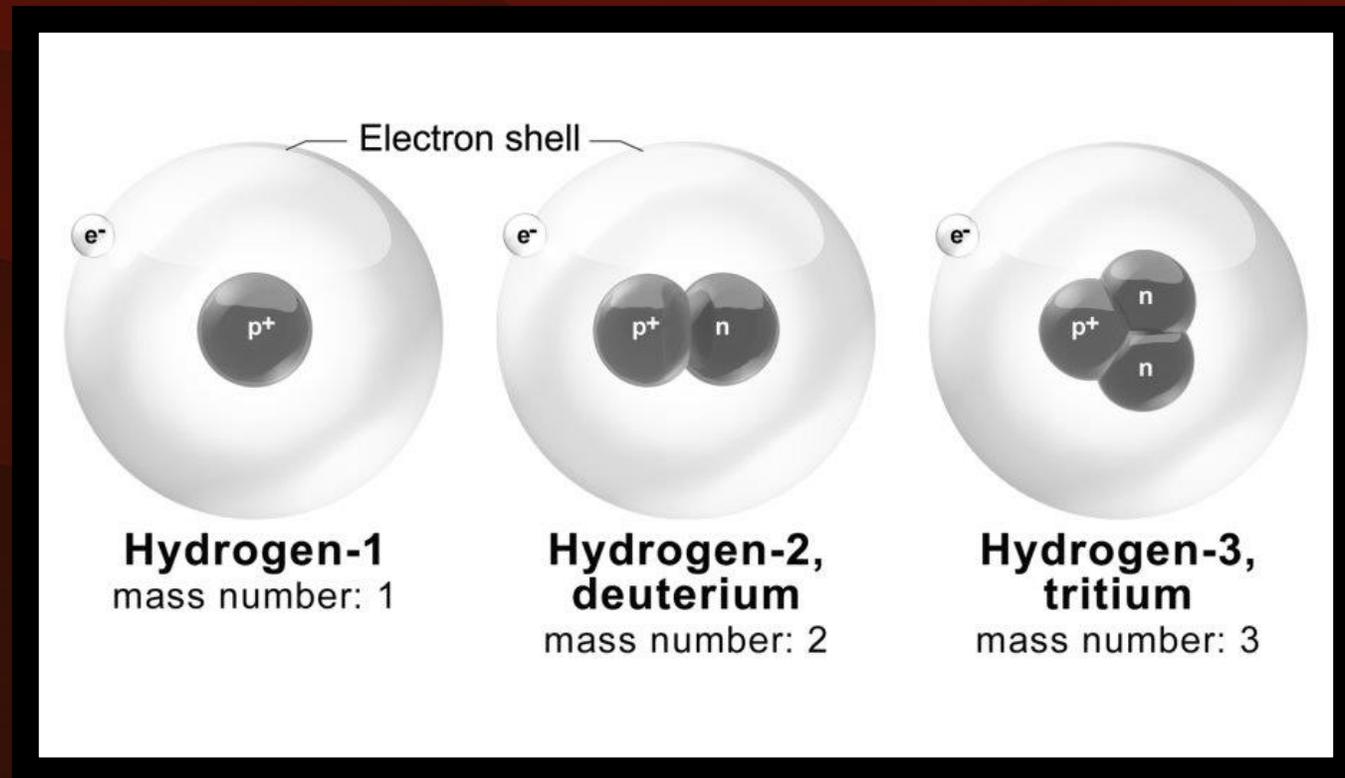


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Isotopes

Atoms of the same element having the same number of atomic number, but different amount of mass number

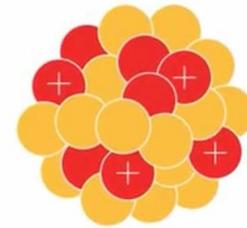


Stable Nucleus

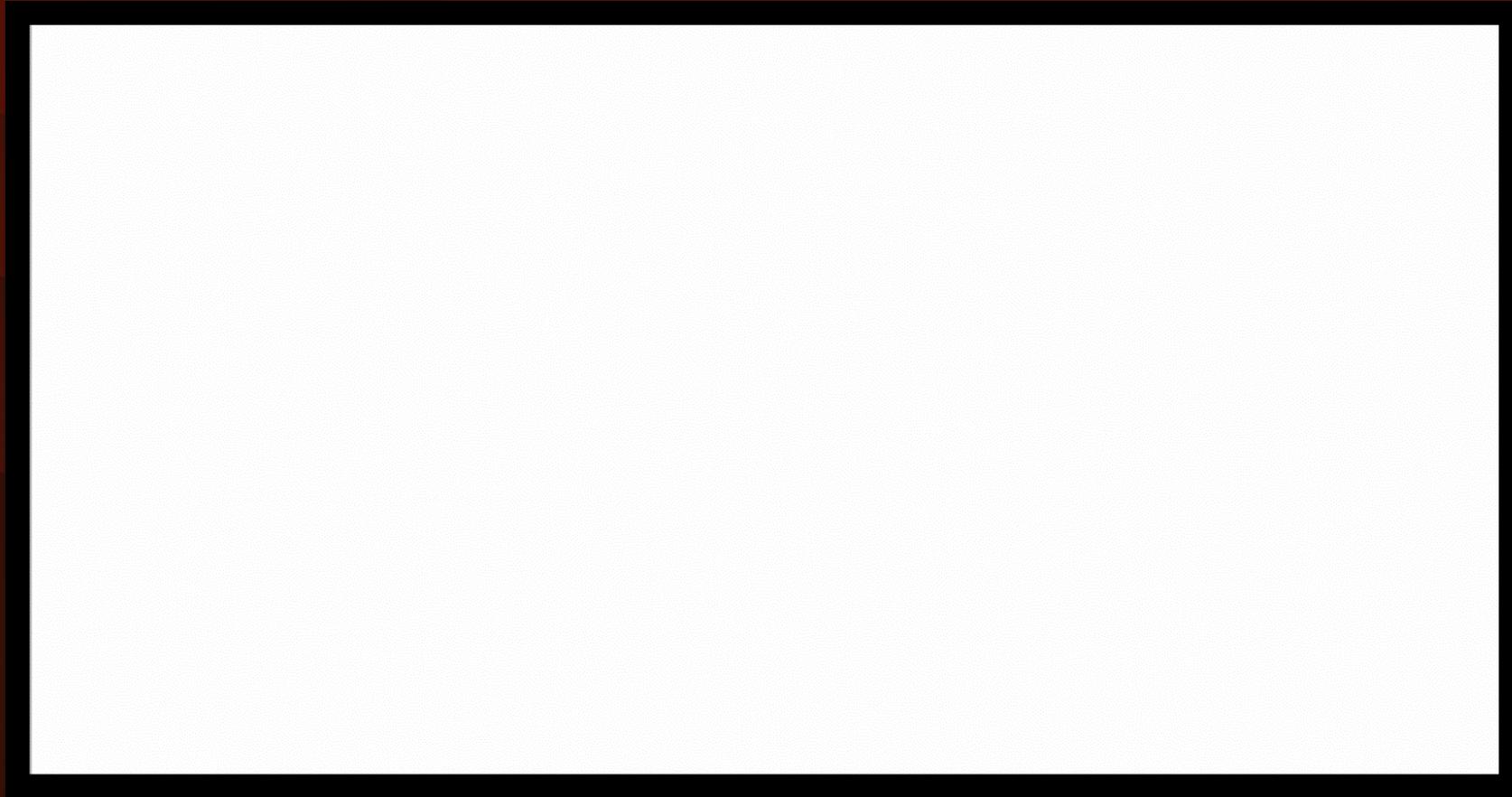


Unstable Nucleus

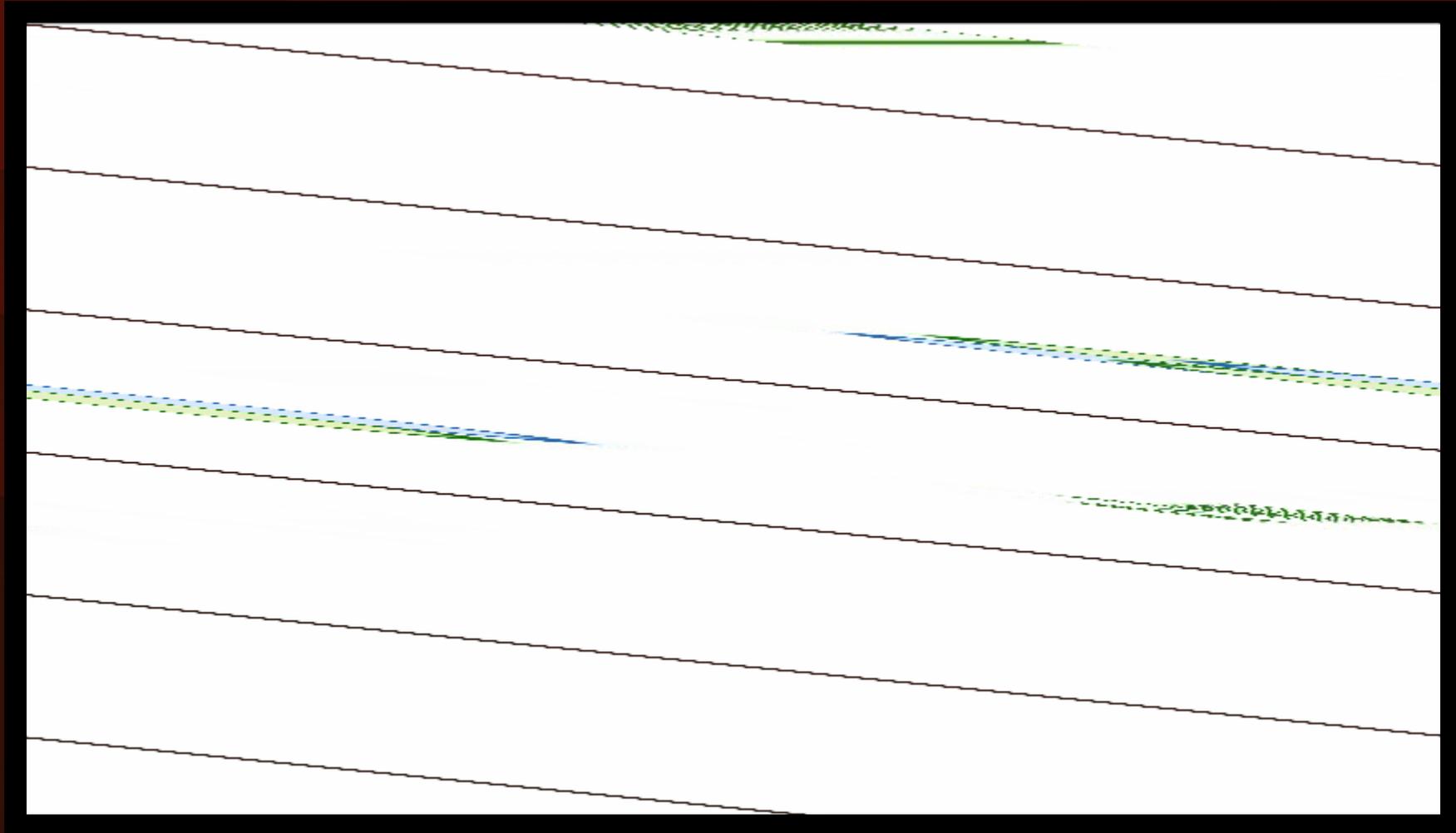
UNSTABLE NUCLEI



Types of Radiation



Properties



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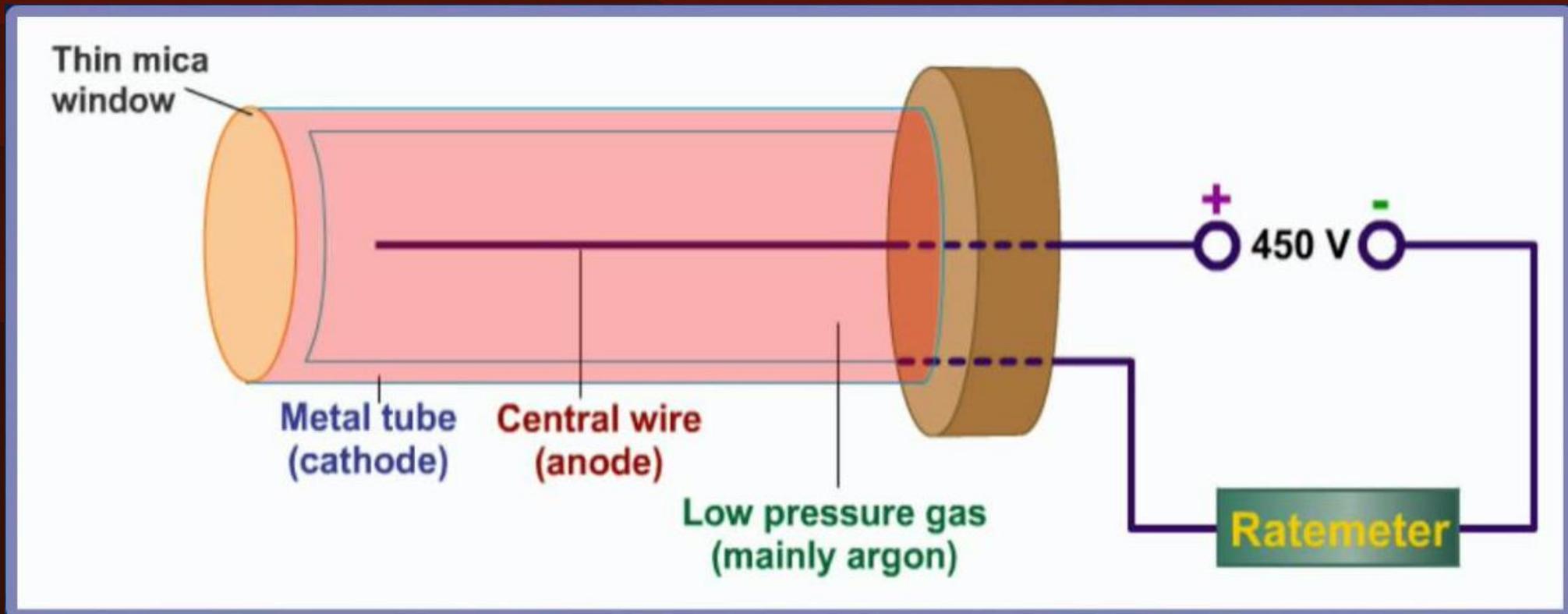
Properties

Property	Alpha radiation	Beta radiation	Gamma radiation
Composition	Alpha particle (helium nucleus)	Beta particle (electron)	High-energy electromagnetic radiation
Symbol	$\alpha, {}^4_2\text{He}$	$\beta, {}^0_{-1}\text{e}$	γ
Charge	2+	1-	0
Penetrating power	Low (0.05 mm body tissue)	Moderate (4 mm body tissue)	Very high (penetrates body easily)
Shielding	Paper, clothing	Metal foil	Lead, concrete (incompletely shields)

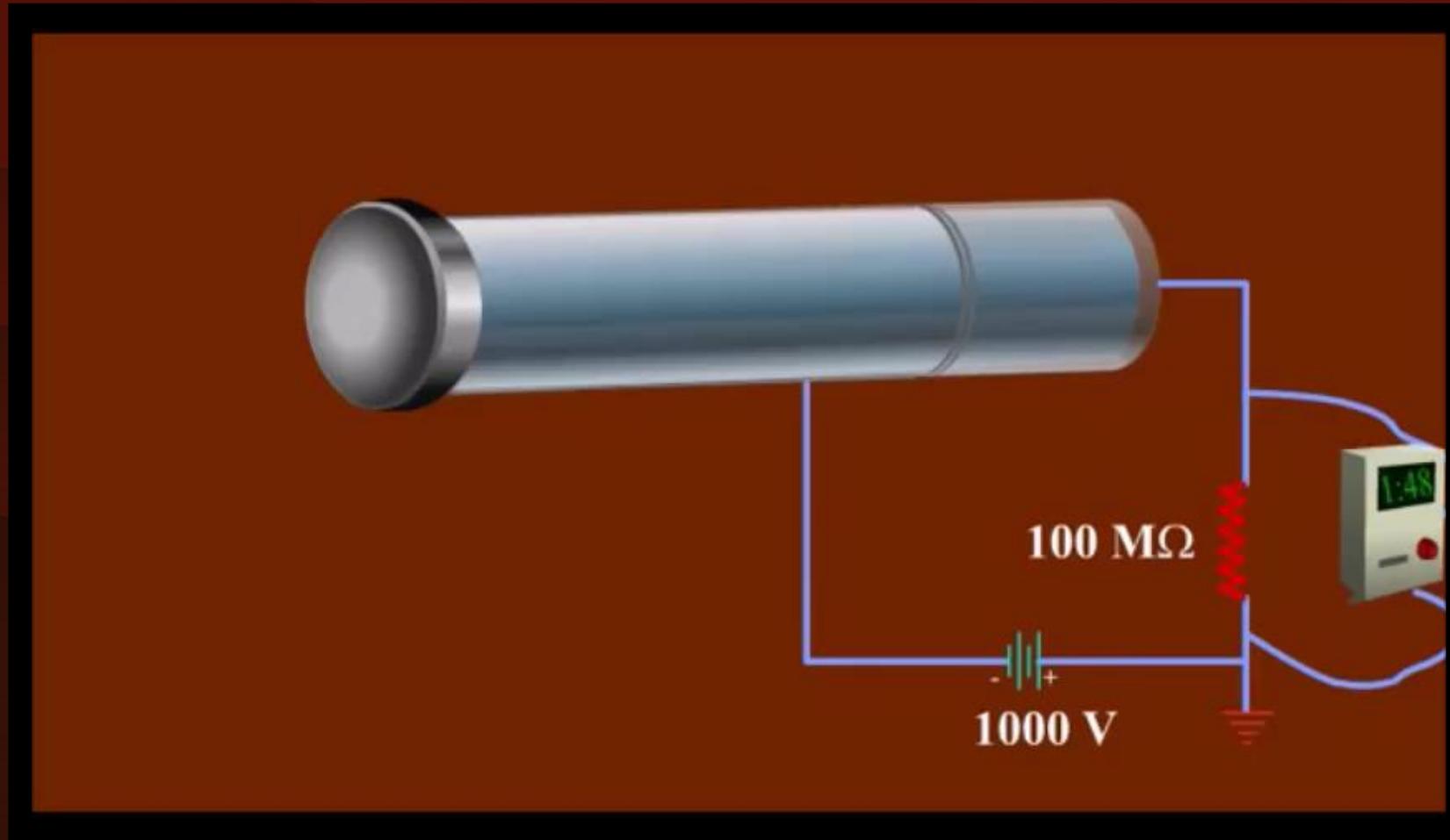


Detection of Radiation

GM Tube



GM Tube



Background Radiation

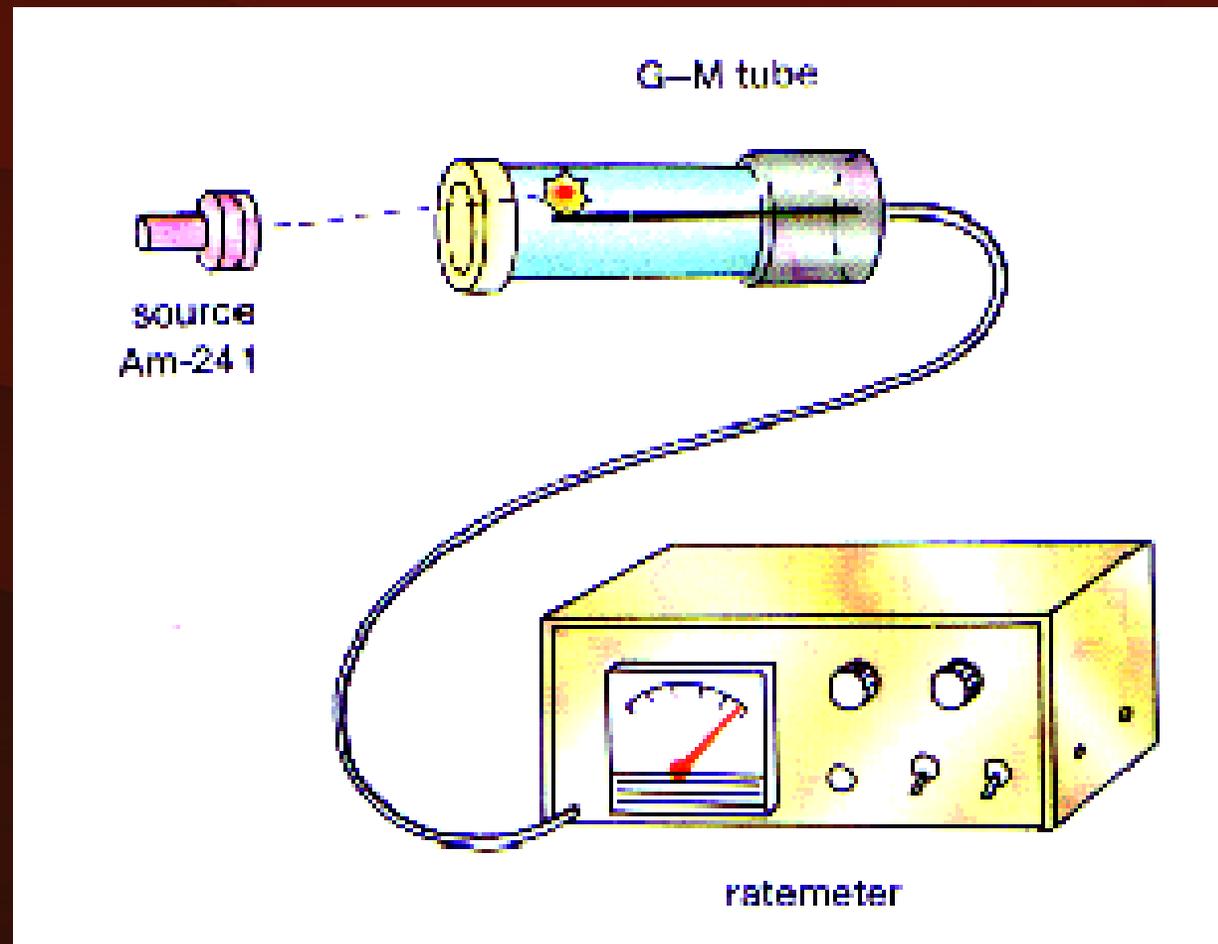
- A measure of the level of ionizing **radiation** present in the environment at a particular location
- The quantity **Activity** gives an indication of how radioactive a substance is.
- Activity is the number of radioactive atoms which disintegrate and emit radioactivity per second.

Sources

- cosmic rays
- rocks and soil
- living things
- nuclear waste



Radiation Detection using GM Tube



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Summary

- How is radiation produced and emitted?
- The type of radiations
- The properties of the radiations
- GM Tube
- Background radiation
- Detecting radiation



Reference

- <https://www.youtube.com/watch?v=UtZw9jflxXM>
- <https://www.youtube.com/watch?v=PlsWy2q0hVc>
- https://www.youtube.com/watch?v=o-3I1JGW-Ck&disable_polymer=true





Thankyou

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