



PHYSICS: The Bedrock of World's Civilization



Presented by: Obumneme Francis Nebo

Materials, Corrosion & Inspection Expert, Shell Nigeria Exploration & Production Company (SNEPCo), Lagos.

At the Physics Department, The College of Science & technology, Covenant University, Ota, Ogun State, Nigeria.

26th October 2017

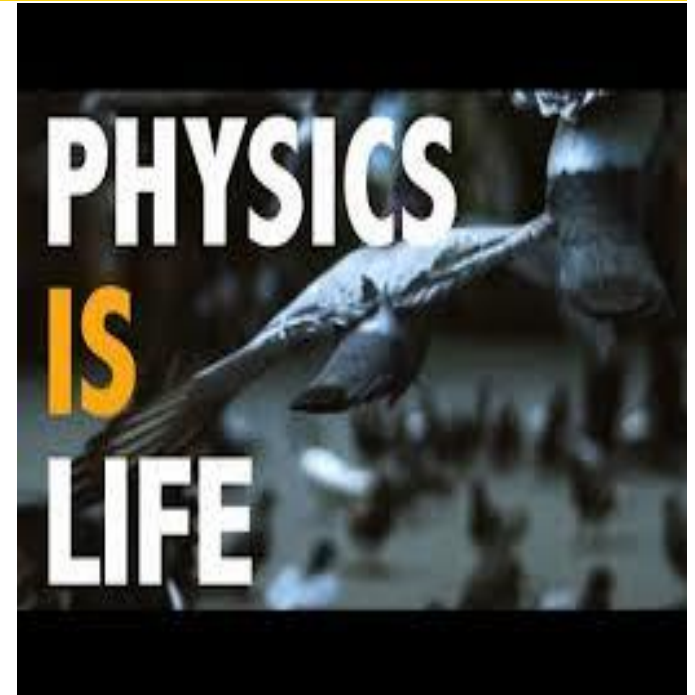
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WHAT IS PHYSICS ALL ABOUT ??

What about Physics?

- ❖ Briefly defined, Physics is a science that tries to understand the laws of nature and the relationship between energy and matter.
- ❖ A profession, and better put, a way of thinking.
- ❖ Physics aims at understanding how the universe behaves using concepts and methods of science that can be applied in a wide range of professional areas and research topics as we shall see later.



Physics Specialties

❖ A wide range of industries seeks physics graduates:

Telecommunications, Oil & Gas, industrial physics, hospital physics, electronics, computing, quality control testing, banking, insurance, teaching, management, technical sales and the armed forces.

❖ Physics majors are well-suited to jobs that require step-by-step problem solving using math skills and good observational and communication skills.

❖ However, all branches of physics involve same fundamental principles. So, regardless of your specialty (intending major) you will eventually find that you are on the right track – that's why your curriculum – core & electives have been keenly selected to qualify your candidature for global excellence.

Physics Specialties Cont'd.

- ❖ Students who become physicists tend to specialize in one or more areas of physics, such as:
- ❖ **Geophysics.**
Study physical aspects of the earth using a range of methods - *gravity, magnetic, electrical* and *seismic* – by collecting data on seismic waves transmitted through the earth to create an image of what lies below the earth's surface.
- ❖ Role in the oil and gas industry
- ❖ Responsible for controlling the quality of the seismic data collected and interpreting data to create maps of the build-up of hydrocarbons.
- ❖ You'll also examine the physical properties of rocks to evaluating well data in order to build reservoir models.

Geophysicists generally work in one of three areas: ***Acquisition, Interpretation, Processing.***

However, geophysicists are generally involved in undertaking seismic exploration and producing controlled source seismic data for oil and gas companies or consultancies. Some of your work is likely to be based offshore. Other areas of specialty in physics

Materials Physics, Physics and Electronics. Nuclear physics. Astrophysics. Condensed Matter Physics and so on.

Career Prospects

- ❖ The perception that the majority of physicists only adorn white coats and work in laboratories undertaking ground-breaking scientific research is misleading.
- ❖ The skills physics majors acquire provide them with outstanding analytical, mathematical and critical thinking abilities.
- ❖ These characteristics are worthwhile no matter what industry a physicist finds employment.

Physics graduates have lots of job opportunities in the following industries;

- Energy/Power Industry (EM-wave generation)
- Defence Industry (Radar/Data interpretations)
- Electronics Industry (knowledge of device fabrication)
- Aviation (Weather forecasters)
- Iron and Steel Industry (micro-structure of materials)
- Telecommunication and Satellite (modern Physics)
- Education (Research skill sets, MSc & PhD)
- Banking & Insurance etc. (Sound mathematical/statistical background)

Physics Specialties Cont'd



Planning for your career in PHYSICS

- ❖ Physics is not a career for the dilettante: requires a strong commitment of time and effort.
- ❖ Must make academic requirements and excellence your first priority.
- ❖ Know your Options - It's important that you understand the career options available to you as a physics major.
- ❖ Expand your Skills - you want to make sure you possess most of the basic skills the employers look for.
- ❖ Core courses (major) receive more focus in graduate schools than Electives.
- ❖ Successful applications to graduate schools will be based on performance in core courses.
- ❖ Build relationships with faculty members who can provide letters of recommendation.

Skills for your CV

Studying physics can help you to develop a range of skills that can be applied in many areas, both scientific and non-technical. These skills include:

- ❖ **Problem solving** - with a pragmatic and analytical approach
- ❖ **Reasoning** - constructing logical arguments, applying analytical skills and grasping complex problems. the ability to express ideas and findings clearly, both orally and in writing to produce reports and make presentations.
- ❖ **Numeracy**- skills in using mathematics to find solutions to scientific problems, mathematical modelling and interpreting and presenting information graphically
- ❖ **Practical skills** - planning, executing and reporting experiments, using technical equipment and paying attention to detail
- ❖ **Communication** - conveying complex ideas and using technical language, team working skills, the ability to work to deadlines and under pressure
- ❖ **Information & Communication technology (ICT)** - including specialist software packages and programming

CERTIFICATION, LICENSURE AND ASSOCIATIONS

No licensing is required for Physicists, but anyone who plans to teach in a university must have minimum of PhD degree, though MSc holders can be considered for research assistant positions.

Local Professional Associations

Nigerian Institute of Physics

Nigerian Association of Mathematical Physics

International Professional Associations

The American Institute of Physics

The American Physical Society

Q & A

