Medical physics

A-Level Physics · Vocabulary in context

Word	Example
ultrasound /ˌʊltrəˈsaʊnd/	**Ultrasound** is sound too high for us to hear.
piezo-electric /piˌeɪtsəʊ ɪˈlektrɪk/	A **piezo-electric** crystal makes a voltage when it is squeezed.
electromotive force /ɪˌlektrəʊˈməʊtɪv fɔːs/	The battery has an **electromotive force** of 9 V. 9 V
transducer /trænsˈdjuːsə/	The **transducer** sends and receives ultrasound.
longitudinal /ˌlɒŋgɪˈtjuːdɪnl/	Sound waves are **longitudinal**.
pulse-echo /pʌls ˈekəʊ/	A **pulse-echo** scan times how long the echo takes.
coupling gel /ˈkʌplɪŋ dʒel/	**Coupling gel** keeps air out between the probe and the skin.
resolution /ˌrezəˈluːʃn/	High **resolution** shows small details.
specific acoustic impedance /spəˈsɪfɪk əˈkuːstɪk ɪmˈpiːdəns/	Bone has a higher **specific acoustic impedance** than muscle.
density /ˈdensɪti/	Iron has a higher **density** than wood, so it sinks in water.
intensity reflection coefficient /ɪnˈtensɪti rɪˈflekʃn ˌkəʊɪˈfɪʃənt/	The **intensity reflection coefficient** tells us how much ultrasound bounces back.
attenuation coefficient /əˌtenjuːˈeɪʃn ˌkəʊɪˈfɪʃənt/	Bone has a large **attenuation coefficient** for X-rays. X

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X-ray tube /eks reɪ tjuːb/	An **X-ray tube** makes X-rays. X
cathode /ˈkæθəʊd/	Electrons leave the hot **cathode**.
electron /ɪˈlektrɒn/	An **electron** has a negative charge.
thermionic emission /ˌθɜːmɪˈɒnɪk ɪˈmɪʃn/	A hot wire gives out electrons by **thermionic emission**.
vacuum /ˈvækjuːm/	There is no air in a **vacuum**, so sound cannot travel through it.
target /ˈtɑːgɪt/	The electrons hit the metal **target**.
anode /ˈænəʊd/	The **anode** is the positive electrode.
tungsten /ˈtʌŋstn/	The target is made of **tungsten**.
kinetic energy /kɪˈnetɪk ˈenədʒi/	A fast car has a lot of **kinetic energy**.
energy /ˈenədʒi/	Food gives your body the **energy** it needs to move.
photon /ˈfəʊtɒn/	A **photon** is a small packet of light energy.
Bremsstrahlung /ˈbremʃtrɑːlʊŋ/	Slowing electrons give out **Bremsstrahlung** X-rays. X
characteristic /ˌkærɪktəˈrɪstɪk/	Each metal gives its own **characteristic** X-ray lines. X
hardness /ˈhɑːdnəs/	X-rays with more **hardness** go deeper into the body. X
momentum /məʊˈmentəm/	A heavy truck has a lot of **momentum**.
attenuate /əˈtenjuːeɪt/	Bones **attenuate** X-rays more than muscle does. X

Word	Example
contrast /ˈkɒntræst/	Good **contrast** makes the bone easy to see.
contrast medium /ˈkɒntræst ˈmiːdɪəm/	A **contrast medium** makes the stomach show up on an X-ray. X
sharpness /ˈʃɑːpnəs/	Better **sharpness** gives clear edges in the image.
half-value thickness /hɑːf ˈvæljuː ˈθɪknəs/	The **half-value thickness** halves the X-ray intensity. X
computed tomography /kəmˈpjuːtɪd təˈmɒgrəfi/	**Computed tomography** builds a 3D image from many X-rays. X 3D
tracer /ˈtreɪsə/	The **tracer** collects in the part of the body being studied.
metabolism /məˈtæbəlɪzəm/	The scan shows where **metabolism** is fast.
positron emission tomography /ˈpɒzɪtrɒn ɪˈmɪʃn təˈmɒgrəfi/	**Positron emission tomography** uses a tracer that gives out positrons.
positron /ˈpɒzɪtrɒn/	A **positron** is like an electron with a positive charge.
antiparticle /ˌæntɪˈpɑːtɪkl/	The positron is the **antiparticle** of the electron.
annihilate /əˈnaɪəleɪt/	An electron and a positron **annihilate** each other.

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