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MORPHOLOGICAL CHARACTERISTICS OF THE FORMATION OF PHYSICAL TERMS

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Abstract: The formation of physical terms is closely connected with morphological processes that ensure accuracy and clarity in scientific communication. This article examines the main morphological characteristics involved in the creation of physical terminology, including affixation, compounding, abbreviation, and borrowing. Special attention is given to the role of Greek and Latin prefixes and suffixes, which contribute to the systematic and standardized development of physics terms. The study shows that morphological structures help organize scientific concepts, improve understanding, and facilitate effective communication across languages. The findings confirm that morphology plays a key role in the formation, development, and international consistency of physical terminology.

Keywords: physical terms, morphology, term formation, physics terminology, affixation, compounding, morphological characteristics.

Introduction. Scientific terminology serves as the foundation of precise and effective communication in all fields of knowledge, particularly in physics, where accuracy and conceptual clarity are essential. Physical terms are not created randomly; rather, they emerge through systematic linguistic processes that reflect both the internal structure of language and the logical organization of scientific concepts. Among these processes, morphology plays a central role in shaping, expanding, and standardizing physics terminology.

The study of morphological characteristics in the formation of physical terms is important for understanding how scientific vocabulary develops and functions. Morphological mechanisms such as affixation, compounding, abbreviation, and borrowing enable the creation of new terms that accurately represent physical phenomena, properties, instruments, and processes. For example, affixes of Greek and Latin origin contribute to the formation of internationally recognizable terms, while compounding allows for the construction of complex conceptual units within a single lexical structure. These processes ensure both semantic transparency and structural consistency within the terminology of physics.[1]

In addition, the international nature of scientific communication requires terminology that is systematic and easily transferable across languages. Morphologically structured terms facilitate translation, teaching, and interdisciplinary collaboration.[2] Understanding how physical terms are formed not only contributes to linguistic research but also supports terminology planning, lexicography, and science education, particularly in multilingual contexts.

Therefore, this article aims to examine the morphological characteristics involved in the formation of physical terms and to analyze the main word-formation models that contribute to the development of physics terminology. By exploring these processes, the study seeks to highlight the relationship between linguistic structure and scientific knowledge organization.

Morphology plays a decisive role in the development of scientific terminology because it provides systematic models for creating new lexical units. In physics, the emergence of new concepts, discoveries, and technologies requires the constant formation of new terms. These terms are usually created through several productive morphological processes such as derivation, compounding, abbreviation, and borrowing. Word formation in linguistics refers to the processes through which new lexemes are created or existing words are modified to express new meanings.[3]

Affixation is one of the most productive morphological mechanisms used in scientific terminology. It involves the addition of prefixes or suffixes to a base word in order to form a new lexical unit with a modified meaning. In scientific vocabulary, most affixes originate from Greek and Latin, which ensures international consistency and semantic precision.

For instance, several physical terms are formed using common prefixes:

Prefix	Meaning	Example in Physics
micro-	small	microscope, microgravity
macro-	large	macroscopic
hyper-	above, excessive	hypercharge
sub-	under	subatomic
photo-	light	photon, photoelectric

Similarly, suffixes are widely used to form scientific nouns and processes:

Suffix	Function	Example
-meter	measuring instrument	thermometer, voltmeter
-graph	recording instrument	seismograph
-logy	study of	cosmology
-ics	scientific discipline	optics, acoustics

These morphological structures allow scientists to create transparent and logically structured terminology.

Another important morphological method in physics terminology is compounding. Compounding occurs when two or more independent lexical units are combined to form a single term.[4]

Many physical concepts are expressed through compound terms because complex phenomena often require descriptive naming. Examples include:

blackbody radiation — mutlaq qora jism nurlanishi
wave function — to‘lqin funksiyasi
particle accelerator — zarralar tezlatgichi
quantum field — kvant maydoni
electric charge — elektr zaryadi

Compounding helps represent complex scientific ideas while maintaining semantic clarity. By combining two conceptual units, scientists create precise terms that reflect the relationship between different physical phenomena.

Scientific communication often requires brevity and efficiency. Therefore, abbreviations and acronyms are frequently used in physics terminology. [5] These forms reduce long technical expressions into concise lexical units that are easier to use in scientific discourse.

Examples include:

LASER – Light Amplification by Stimulated Emission of Radiation
RADAR – Radio Detection and Ranging
UV – Ultraviolet
IR – Infrared
QED – Quantum Electrodynamics

Abbreviations are especially common in modern physics, where complex theoretical frameworks and experimental technologies require compact naming systems.

Another morphological feature of physics terminology is borrowing from classical languages such as Greek and Latin. Many scientific terms originate from these languages because they historically served as the foundation of European scientific discourse.[6]

Research shows that a large portion of physics vocabulary is derived from Greek or Latin roots, which helps maintain international uniformity across languages.

Examples include

Root	Meaning	Term
thermo	heat	thermodynamics
electro	electricity	electromagnetism
astro	star	astrophysics
chrono	time	chronometer
dynamis	force	dynamics

Such roots form a universal lexical base that allows scientists from different linguistic backgrounds to understand the same terminology.

Structural Models of Physical Term Formation. Physical terms can also be classified according to their structural patterns. These include simple terms, derived terms, compound terms, and complex terminological units.

Simple terms. These consist of a single root morpheme and represent fundamental concepts.

Examples:

- mass
- force
- energy
- charge

Derived terms

Derived terms are formed through affixation.

Examples:

- electrify → electrification
- atom → atomic
- magnet → magnetism

Compound terms

Compound terms consist of two or more lexical bases.

Examples:

- electromagnetic field
- gravitational wave
- nuclear reaction

Complex terminological phrases. Some physical terms appear as multi-word expressions used in scientific discourse.

Examples:

- law of conservation of energy
- theory of relativity
- principle of uncertainty

These structures illustrate the interaction between linguistic form and conceptual organization in physics.

Morphological organization ensures that scientific terminology remains systematic, transparent, and expandable. Because physics constantly develops new theories and technologies, terminology must evolve accordingly. Morphological rules allow scientists to generate new terms while maintaining consistency with existing vocabulary.[7]

Furthermore, morphological transparency facilitates teaching and learning. When students understand the structure of terms such as thermodynamics, electromagnetism, or astrophysics, they can easily interpret the meaning of unfamiliar scientific words.

In multilingual contexts, morphology also simplifies translation and terminology standardization. Terms built from internationally recognized roots are more easily adapted into different languages without losing their conceptual meaning.

Conclusion. The formation of physical terminology is strongly influenced by morphological processes that shape the structure and meaning of scientific vocabulary. Affixation, compounding, abbreviation, and borrowing serve as the primary mechanisms through which new physical terms are created. These processes provide systematic models that allow terminology to expand alongside scientific progress.

Greek and Latin elements play a particularly important role in ensuring the international consistency of scientific language. Through the combination of roots, prefixes, and suffixes, physics terminology develops into a structured lexical system that accurately represents complex scientific concepts.

Thus, morphology not only contributes to the linguistic organization of physical terms but also supports the development of scientific knowledge and effective communication within the global scientific community.

References:

1. Cabré, M. T. (1999). Terminology: Theory, Methods and Applications. Amsterdam: John Benjamins Publishing Company.
2. Sager, J. C. (1990). A Practical Course in Terminology Processing. Amsterdam: John Benjamins Publishing.
3. Wright, S. E., & Budin, G. (1997). Handbook of Terminology Management. Amsterdam: John Benjamins Publishing.
4. Bauer, L., Lieber, R., & Plag, I. (2013). The Oxford Reference Guide to English Morphology. Oxford: Oxford University Press.
5. Marchand, H. (1969). The Categories and Types of Present-Day English Word-Formation. Munich: C.H. Beck.
6. Bowker, L., & Pearson, J. (2002). Working with Specialized Language: A Practical Guide to Using Corpora. London: Routledge.
7. Kageura, K. (2002). The Dynamics of Terminology: A Descriptive Theory of Term Formation and Terminological Growth. Amsterdam: John Benjamins.