

JAF04 Unit 5 Abstracts

Task 1 Read the titles of articles from various journals of physics. Which articles would you read?

- A) Determination of molecular structure from microwave spectroscopic data
- B) Factors influencing the learning of classical mechanics
- C) The role of turbulence in star formation laws and thresholds
- D) Can apparent superluminal neutrino speeds be explained as a quantum weak measurement?
- E) An experimental analysis of a vibrating guitar string using high-speed photography

Task 2 How to write an abstract

Complete the text with the clauses A-I

- A) that is not also in the main text
- B) it is not the focus of the paper
- C) to summarize your conclusions
- D) understandable without reading or looking at anything else
- E) it should be featured
- F) until after you have written the rest of the paper
- G) that contrast with your results
- H) then you would include the numerical result and uncertainty
- I) it will lose its impact

The primary purpose of the Abstract is (1) _____. What new and interesting thing are you telling the world? If the whole point is that you have improved the accuracy of some measurement, (2) _____. Otherwise, you probably wouldn't include the uncertainty. In fact, the best experiments often lead to Abstracts with no numbers at all! A qualitative conclusion that is interesting enough to be published is usually of wider interest and application.

Along the way, you usually give some description of your equipment or experimental technique. However, this does not need to be detailed if (3) _____. On the other hand, if the point of your paper is that you have designed a new apparatus or made an improvement to some experimental technique, then (4) _____.

There is also an element of marketing in Abstracts. The Abstract is your advertisement enticing anyone doing an abstract search to read your full article. As a result you often refer to previous work or common assumptions of the past (5) _____. Or you might explain in one or two sentences why the field is vitally important.

Whatever the focus of your paper is, it should be clear by the second sentence of the Abstract. If you leave it until the end of the Abstract, (6) _____. Since the Abstract is a summary, nothing should be in it (7) _____. An Abstract is not an introduction; the paper should be complete even without the Abstract. One way to ensure this is to leave writing the Abstract (8) _____.

The abstract is almost always required to be a single paragraph. It has to be self-contained (i.e., (9) _____). It cannot have or refer to any figures or tables – it's just straight text.

(Physics Writing Guide, available at <http://www.geneseo.edu/~mclean/Dept/JournalArticle.pdf>)

Task 3 Complete the abstract with suitable prepositions.

International Journal of Modern Physics

Gravitation; Astrophysics and Cosmology; Volume 21, Issue 14, December 2012

THE FAILURES OF THE STANDARD MODEL OF COSMOLOGY REQUIRE A NEW PARADIGM

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Cosmological models that invoke warm or cold dark matter cannot explain observed regularities _____ the properties of dwarf galaxies, their highly anisotropic spatial distributions, nor the correlation _____ observed mass discrepancies and acceleration. These problems with the standard model of cosmology have deep implications, in particular _____ combination with the observation that the data are excellently described by Modified Newtonian Dynamics (MOND). MOND is a classical dynamics theory which explains the mass discrepancies in galactic systems, and in the universe at large, without invoking 'dark' entities. MOND introduces a new universal constant of nature with the dimensions of acceleration, a_0 , such that the pre-MONDian dynamics is valid _____ accelerations $a \gg a_0$, and the deep MONDian regime is obtained for $a \ll a_0$, where spacetime scale invariance is invoked. Remaining challenges for MOND are (i) explaining fully the observed mass discrepancies in galaxy clusters, and (ii) the development of a relativistic theory of MOND that will satisfactorily account _____ cosmology. The universal constant a_0 turns _____ to have an intriguing connection with cosmology: $\bar{a}_0 \equiv 2\pi a_0 \approx cH_0 \approx c^2(\Lambda/3)^{1/2}$. This may point _____ a deep connection between cosmology and internal dynamics of local systems.

Task 4 Tense review

Complete each sentence with the present perfect or past simple form of the verb in brackets.

1. In 2005, scientists _____ (measure) a land temperature of 70.7°C in the Lut Desert in Iran. No higher temperature _____ (record) on earth since then. This is the only time scientists _____ (record) a temperature above 70°C.
2. A team of Russian scientists _____ (just complete) a five-year study of the behavioural patterns of three Siberian wolf packs.
3. New research indicates that scientists _____ (discovered) a potential cure for some forms of dementia. The key finding _____ (make) two months ago by a team working for Julia Davidson.
4. Research _____ (demonstrate) that people can delay the onset of diabetes by losing weight.

Task 5 Reporting verbs

Circle the correct option.

1. Miller *doubts/ criticizes* the police for the length of time that protesters were contained in one place.
2. Selig *maintains/ defines* that within all group situations, leaders identify themselves first of all through body language.
3. As Hartner *explains/ considers*, we have to take into account in polling that the more personally-focused the questions are, the greater the likelihood that the respondent may not be telling the truth.
4. Markham has *concluded/ identified* the poor performance of some schools as a key factor in youth unemployment.
5. The authors of the report *demonstrate/ evaluate* that health and safety standards have risen on North Sea oil rigs.
6. As Rumick *states/ classifies* in the introduction of her book, the design of a hospital can have a positive effect on the health of its patients.
7. Berlow *characterizes/ contends* Liverpool as a city where small regeneration projects have produced impressive returns on their initial costs.
8. Heller and Golding have *believed/ argued* that the concept of the garden city as conceived by Sir Howard in the 19th century needs to be revisited.

(tasks 4 and 5 adapted from Paterson, K. *Oxford Grammar for EAP*. OUP 2013.)