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THE PRACTICAL IMPORTANCE OF ARTIFICIAL INTELLIGENCE IN TEACHING THE DEPARTMENT OF ATOMIC PHYSICS IN SCHOOL PHYSICS LESSONS

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Annotation: This article provides information on the priority aspects of using the achievements of artificial intelligence in teaching the atomic physics department of physics in secondary schools. The importance of artificial intelligence in assessing students' knowledge in the teaching process is also highlighted.

Keywords: Artificial intelligence, interactive simulations, Physics-STAR, PhET Interactive Simulation.

The use of artificial intelligence (AI) technologies in school physics lessons helps to significantly improve the educational process. In particular, these technologies allow for increased student interest, deepened understanding, and an individual approach for teachers.

The practical importance of artificial intelligence in physics lessons

1. Interactive and individualized teaching: AI technologies provide educational materials tailored to the individual needs and level of mastery of students. This helps students better understand the subject.

2. Visualization of physical phenomena: AI displays complex physical processes and phenomena through interactive simulations. This allows students to more clearly understand abstract concepts.

3. Increasing student engagement: AI technologies help make lessons more interesting and interactive, which increases students' interest in lessons.

4. Assistance in data analysis: With the help of SI, students will be able to quickly and accurately analyze the results of experiments, which will increase the effectiveness of teaching.

Methodological support for teachers: AI technologies help teachers analyze the level of knowledge of students and develop an appropriate approach to them. The use of artificial intelligence technologies in school physics lessons helps to make the educational process more effective and interesting. These technologies increase the level of knowledge of students, deepen understanding, and allow teachers to implement an individual approach.

The use of artificial intelligence (AI) technologies in teaching atomic physics at school can significantly improve the learning process. AI provides students with interactive and personalized approaches to understanding complex atomic physics concepts. AI provides learning materials that are tailored to the level of mastery and needs of students. For example, systems such as Physics-STAR help students understand complex atomic physics problems by providing individualized support. Platforms such as PhET Interactive Simulations allow students to study topics such as atomic structure,

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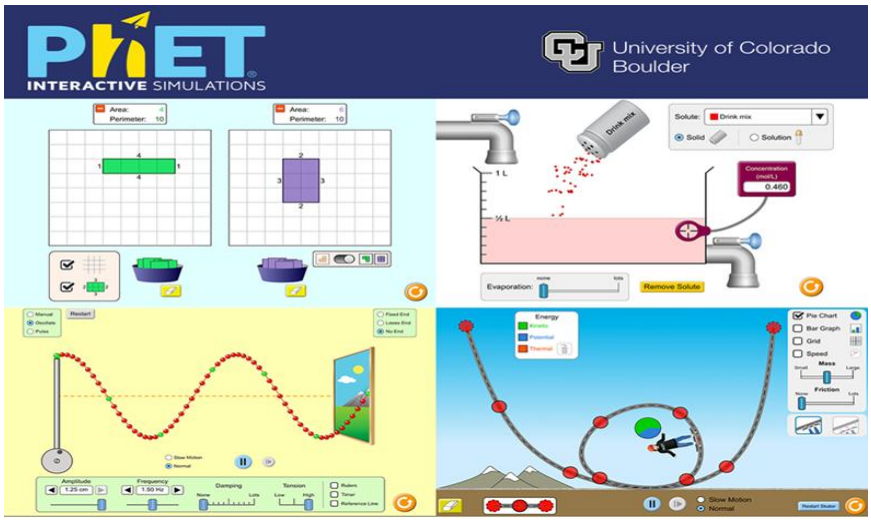
quantum mechanics, and the electromagnetic spectrum in a virtual environment. These simulations allow students to visualize abstract concepts. AI allows students to analyze the results of experiments in real time. This allows students to quickly identify and correct errors, which increases learning efficiency. AI increases students' motivation and reduces stress by providing students with quick and constructive feedback. This increases students' interest in atomic physics. Collaboration and global learning opportunities SI technologies allow students to collaborate with peers from different geographical locations. This helps them to jointly solve global problems related to atomic physics.

The use of artificial intelligence technologies in teaching atomic physics can help make the learning process more effective and interesting. These technologies help students understand complex atomic physics concepts, increase their motivation, and allow teachers to implement an individual approach.



Interactive and virtual labs in the teaching of atomic physics allow students to learn complex scientific concepts in a hands-on way. These methods increase student interest, deepen understanding, and enable teachers to deliver effective lessons.

Using the PhET Interactive Simulations Platform

PhET Interactive Simulations is a free interactive simulation suite developed by the University of Colorado and widely used in the teaching of atomic physics.

How to use it:

1. Sign in: Go to phet.colorado.edu. (Studocu)

2. Choose a simulation: In the "Simulations" section, select an atomic physics simulation, such as "Build an Atom" or "Atomic Interactions." (phetsims.github.io)

3. Explore the simulation: Run the simulation and explore the structure of an atom by changing the number of protons, neutrons, and electrons.

4. Do the learning activities: The PhET site has guides and activities designed for teachers. These materials can be used to teach students topics such as atomic structure, ions, and isotopes.

Quantum Flytrap Virtual Lab

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If you want to teach advanced topics like quantum mechanics or quantum computing, the Quantum Flytrap Virtual Lab can be useful. This platform allows users to explore quantum experiments in an interactive way.

How to use it:

1. Log in: Go to lab.quantumflytrap.com.

2. Select a simulation: Choose between "Quantum Game" or "Sandbox" modes.

3. Run the experiment: Place optical elements and explore quantum phenomena.

4. Analyze the results: Visually explore concepts like quantum states and entanglement.

• Lesson preparation: Try the simulations yourself before class. This will help you determine how to guide your students.

• Ask questions: Ask students questions as they explore the simulations, which will help them develop their thinking.

• Conducting Experiments: Have students conduct experiments to explore the structure of atoms in the "Build an Atom" simulation.

• Developing Critical Thinking: Develop critical thinking skills in students by exploring the interactions between atoms in the "Atomic Interactions" simulation.

Interactive and virtual laboratories allow students to gain practical experience, understand complex concepts, and develop scientific thinking in the teaching of atomic physics. Platforms such as PhET Interactive Simulations and Quantum Flytrap Virtual Lab make this process more effective and interesting.

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