

Citizen Science

Opportunities and Challenges

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Citizen science is a collaborative research approach that involves researchers and citizens in scientific projects. In physics, citizen science can involve a wide range of activities, from data collection to analysis and interpretation of results.

One of the challenges of citizen science in physics is the need for specialised knowledge and training. Physics research often requires advanced mathematical and computational skills, which may be beyond the reach of many members of the public. As a result, citizen science projects in physics typically require careful planning, training and strong involvement of researchers to ensure that participants have the necessary skills to contribute meaningfully.

Another challenge is the need for high-quality data. In physics research, data is often collected using specialised equipment, which may be complicated to understand for the public (e.g. telescopes, high-energy particle physics experiments) or difficult to access (e.g. satellites, some geographical sites). Citizen science projects must therefore carefully design data collection protocols and ensure that participants have access to the necessary tools, equipment and software.

Despite these challenges, citizen science has the potential to make significant contributions to physics research. Citizen science helps to analyse large amounts of data, complementing machine learning and other computational techniques to reveal new insights into the fundamental laws of physics. Additionally, by involving members of the public in scientific projects, citizen science increases public engagement with science and promote the democratisation of scientific research.

Citizen science as shown in one of the articles of this issue plays an important role in advancing astronomy and astrophysics, and has led to many discoveries and breakthroughs in the field. Citizen science can also play a crucial role in volcano observations (see a dedicated article in this issue), by engaging communities in monitoring and reporting volcanic activity. Citizen science projects in volcano observations can help to increase public awareness of volcanic hazards and can provide valuable data to volcanologists that are used to improve our understanding of volcanic behavior.

Political conflicts can pose significant challenges to citizen science, particularly when scientific research intersects with politically sensitive issues or when scientific findings conflict with political interests. In particular, citizen science projects often involve the collection of large amounts of data, which may be subject to restrictions on access and ownership. Political conflicts can make it difficult for citizen scientists to access or share data, particularly when the data is sensitive or classified. The current political conflicts can also lead to the spread of misinformation and disinformation, which can undermine the credibility of scientific research and make it difficult for citizen scientists to communicate their findings effectively. Despite these challenges, citizen science has the potential to promote transparency, accountability, and public engagement in scientific research. By involving members of the public in scientific projects, citizen science can help to promote democratic decision-making and increase public understanding of complex scientific issues. ■

■ Marek Lewitowicz

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