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04 March 20120

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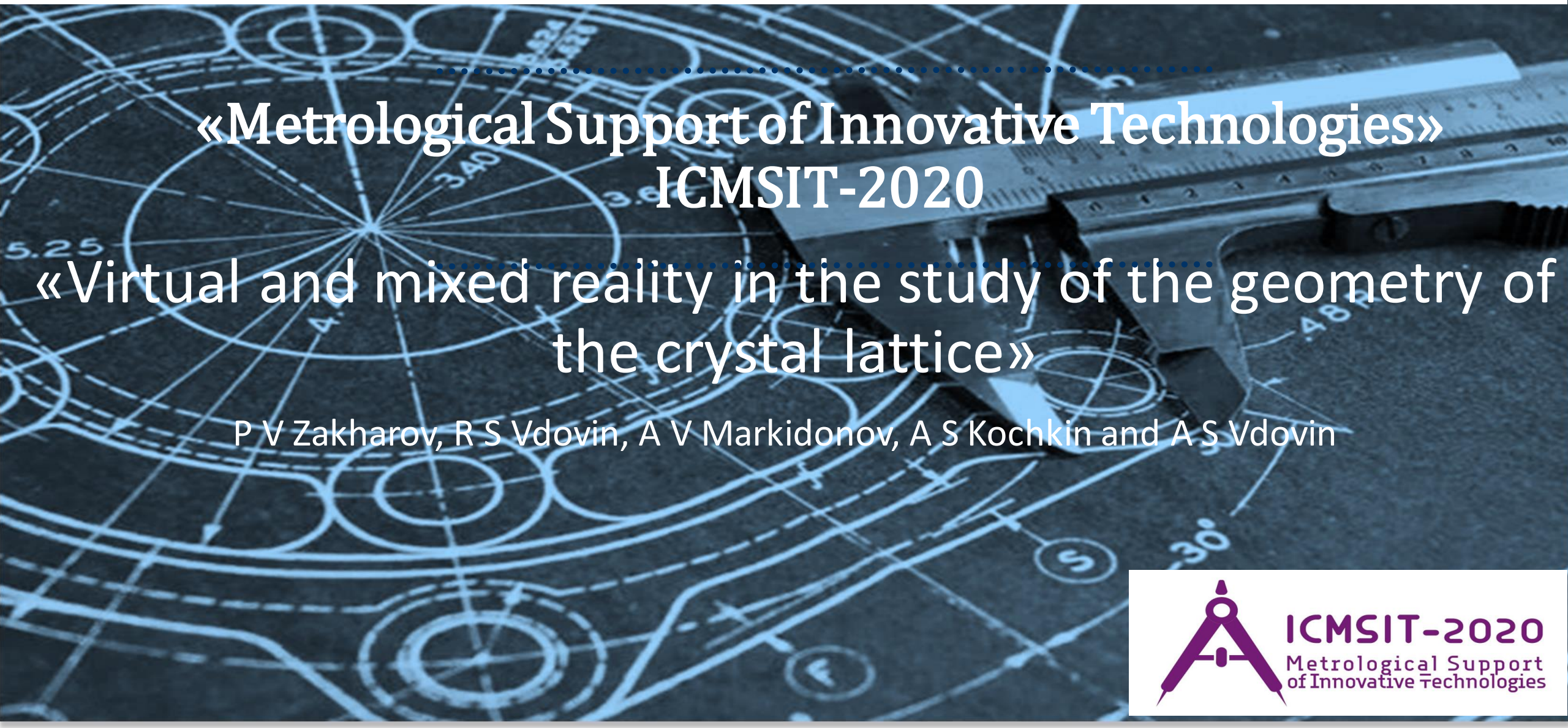


«Metrological Support of Innovative Technologies» ICMSIT-2020

«Virtual and mixed reality in the study of the geometry of the crystal lattice»

P V Zakharov, R S Vdovin, A V Markidonov, A S Kochkin and A S Vdovin

ICMSIT-2020
Metrological Support of Innovative Technologies

Problem statement

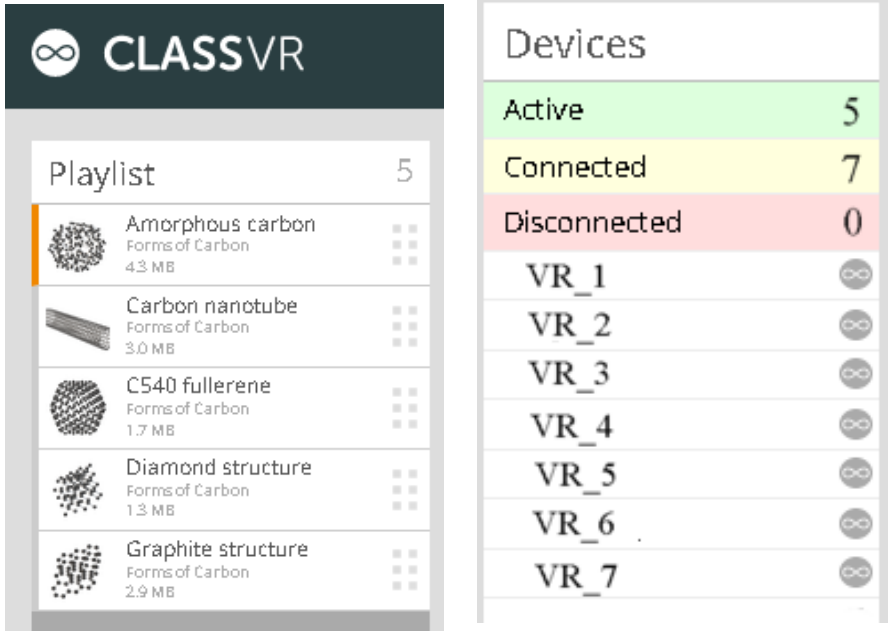
We will consider the possibility of using mixed reality technology in studying the theme of the geometry of the crystal lattice in the course of solid state physics by students of the third year of study. At the same time, the form of conducting the classes was classic

Studying the theme of the geometry of the crystal lattice requires developed spatial thinking. Often, projections of crystals on a plane and three-dimensional images of crystals were used. This approach caused difficulties for students to understand the assignment and, as a consequence, the inability to complete it on time. The combination of the classical form of employment and technology of mixed reality made it possible to ensure control of students' results, as well as the fulfillment of basic tasks on the subject under discussion

Solution methods

As the environment of virtual, augmented and mixed reality, we used equipment and basic classvr software, which allows us to control the operation of each headset and at the same time provide an individual approach to each student

Virtual and mixed reality headsets



VR content and headset management system

Conclusions

Based on the results of the study, a number of conclusions can be drawn. First of all, it is worth noting the increased interest of students in the study of the discipline and their more active attendance of classes at which the use of VR headsets was announced. When studying complex spatial objects of crystallography, virtual reality technology allowed students to familiarize themselves with the object of study in more detail, understand the structure of crystals and, accordingly, complete the task in a timely manner. At the same time, the prolonged use of virtual reality headsets led to rapid fatigue of students

Contacts

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