

10th International Conference "Distributed Computing and Grid Technologies in Science and Education" (GRID'2023)



Contribution ID: 252

Type: **not specified**

Common IT space for joint research in the field of Controlled Thermonuclear Fusion in Russian Federation –FusionSpace.ru

Tuesday 4 July 2023 17:45 (15 minutes)

Extensive studies, in the field of high temperature plasma and controlled thermonuclear fusion were started in 50th of the last century. Main goal of these studies was the creation of power source runs on relatively cheap hydrogen isotope Deuterium heated up to hundred million degrees in the conditions where it will be possible to obtain thermonuclear reaction.

In the beginning, the simple idea of a thermonuclear reactor was rather simple, but it would appear so complicated that only in 2010th the construction of International Thermonuclear Experimental Reactor (ITER) was started in Cadarache (First plasma in 2028). During previous 70 years it was created physical and technical fusion data bases closely coupled with solid-state physics, magnetic hydrodynamics, etc. This is a labor thousands of physicists, engineers, inventors. At present time, huge amount of fusion knowledge is accumulated in Russian scientific research centers and universities.

Purpose of creation FusionSpace.ru in Russia is:

- delivery of instruments and services for joint research in fusion,
- access to accumulated knowledge,
- modern, reliable and comfortable information access for scientific results in Russia and, through ITER project, access in to international fusion society.

Report presents the first stage of FusionSpace.ru prototype commissioning results for fusion research in Russia. It was shown that the concept of FusionSpace.ru gives the possibility of integration Russian and international fusion research knowledge. Russian and International experience in fusion IT infrastructure manufacturing is described, including remote experiments on JET, WEST, DIII-D and ITER (through Russian RPC and REC). Report also present the results of remote participation in ITER project in the framework of Remote Participation Center.

Report has an interest for physicists and engineers working at physical installations connected with Big Data processing.

Work done under contract № H.4к.241.09.23.1036 dated 22.03.2023 and contract № H.4a.241.19.23.1014 dated 18.01.2023.

Keywords: Controlled Fusion, Tokamak, ITER, distributed researching, digital platform.

Summary

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Session Classification: Computing for MegaScience Projects

Track Classification: Computing for MegaScience Projects