## myView2, Multi-purpose and Multiplatform Data Visualization Tool

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By the end of FY 2013, the author had developed a python-based visualization tool, called myView. The main target of this application is the visitor who comes to NIFS and has to analyze the experiment data during the short stay. Therefore the visualization tool requires the following features. 1) It must support various operating systems. 2) It is easy to visualize the data soon after the visitors arrives at NIFS. 3) The visualized data must be saved into the local disk for further analysis. MyView satisfied these requirements. 1) The main component of myView is written in python and easy to migrate into various operating systems. Currently, it supports Windows, MacOS, and Linux. 2) myView uses the graphical interface and easy to use. The layout of the main screen is flexibly customized. The visitors can use the predefined layout files and visualize the required data without difficulty. 3) The visualized data is stored in the cache directory. These files are text files (Analyzed Data Server Format [1]), and the user can use various tools to analyze the experiment data.

The last year, the authors have modified myView and developed myView2. The user interface has become more intuitive. Unfortunately, the data loader modules of myView2 are not compatible with myView, and it is required to rewrite them. However, thanks to the contributors, currently 112 data loader modules are available for myView2 while myView supported only 64 modules.

The most remarkable new feature is color map. myView2 can draw the three dimensional data (one variable in the two dimensional space) as a color map. Fig 1 shows the history of the electron and the ion temperature as functions of the effective radius are displayed as color maps. This kind of color map graph is helpful to understand the time evolution of the distribution the easily. Also, when the line cursor is on, the lines of the same X-axis value are drawn in all the drawing area. The physical values corresponding to the line cursor can be saved as a text file as well as displayed in the window. Therefore, it is easy to compare the multiple physical values at the time when the interesting event occurs.

During the 18<sup>th</sup> campaign, as seen in Fig 2, ten PC were situated at the center of the room, and displayed the analysis of the recent plasma discharge using myView2 [2]. To display the summary graph synchronized with the experiment sequence, myView2 uses real-time mode. This function is specially implemented for the LHD experiment. However, myView2 has notify mode and server modes, too. When myView2 is in notify mode, it executes commends in a file. On the other hand, when it is in server mode, the commands can be provided from the client program. Using



Fig. 1. The electron temperature and ion temperature distribution mapped on the effective coordinate.



Fig 2. The summary of the recent plasma analysis are displaying using myView2.

these modes, myView2 can be operated by other programs, and it is easy to operate automatically for the other experiments.

1) Emoto, M. et al.: Fus. Eng. Des. 81 (2006) 2019.

2) Emoto, M. et al.: 10th IAEA Technical Meeting on Control, Data Acquisition and Remote Participation for Fusion Research, Ahmedabad, 2015