

## New version of Zindaiji, a GUI visualization tool for large number particle simulation data.

TAKEDA, Takaaki<sup>1\*</sup>

<sup>1</sup>National Astronomical Observatory of Japan

Visualization of 3D/4D simulation data is important not only for research but also for public outreach.

The tools of scientific visualization are often designed for the former purpose. However, for outreach purpose, these tools have often difficulties, because they often lack the functions such as camera work editing or drawing modelled objects, texturing, etc. On the other hand, using general purpose 3DCG softwares, it is easier to visualize objects with higher quality. However, converting data to the format which can be read by these softwares requires skills of computer graphics, and researchers do not have it in general.

We have developed a GUI application (Zindaiji) to visualize particle data, several years ago. In NAOJ 4D2U Project, we have made high quality movies for public outreach, with up to 2 million particle N-body simulation data. However, Zindaiji is developed as 32bit windows application, so that it can not handle recent larger scale N-body simulation data.

Thus, we are now developing new versions of Zindaiji as 64bit applications, and basic functions have now been implemented. The features of Zindaiji are,

- 1)Ability to make movies from sequential particle data.
- 2)Implementation of interpolation of data.
- 3)Fast rendering using OpenGL.
- 4)GUI based, and time-line based interface.

In Zindaiji 3, we have improved following features.

- 5)Making as 64-bit application, memory limitation is much alleviated.
- 6)Great improvement in operability.
- 7)Improvement in the rendering speed by reexamination of a drawing algorithm.
- 8)Reduction of waiting time by multithread-izing and data prefetch.
- 9)Multi-platform (Windows/LINUX/MacOSX)

On the now, Zindaiji3 is not implemented with the features such as motion blur or lens flare (which are implemented in Zindaiji). We will add these features to Zindaiji 3 as the future works.

The binary and source code is published to the web.

[http://th.nao.ac.jp/~takedatk/COMPUTER/ZINDAIJI3/Zindaiji3Top\\_E.html](http://th.nao.ac.jp/~takedatk/COMPUTER/ZINDAIJI3/Zindaiji3Top_E.html)

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