Weekly Report
6/22-6/27

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caveMathematica

The first two days of the week I spent trying to compile caveMathematica. Here are the highlights:

- Taking the source file caveMathematica.tm, you must use it as the input for the program mprep. Mprep produces as c file.
- The header files must be prepared. Mainly, this means having the right includes and changing the GL/gl.h and GLUT/glut.h . . . but we knew this was the case.
- Linking the libraries. I did not think that this would be so hard. One must point ld to the write directory with “L” flag and then strip each individual library of its “lib” prefix and its “.dylib” suffix.
- And saddest of all, Stuart Levy’s stars (in its current version) was not able to be included in the caveMathematica program.

To use caveMathematica, the executable must be in the szg executable directory. In the lab setup, this corresponds to /b1/imath08/szgbin. Preferably on another computer, open up the notebook caveMathematica.nb. Follow the instructions there. When you get to the cell that opens MathLink in listen mode, run the command:

```
dex <virtual_computer> caveMathematica <ipaddress>
```

where the ipaddress is the ip address of the computer running Mathematica. Note it does not have to be a part of the Phleet! Running on the macs works great. We can even mix it up to use windows as the Mathematica server. However, we are still running into issues in the Cube. There seems to be some sort of firewall issue. The netstat command shows that the computer executing caveMathematica is sending on the correct port to the correct computer, but there seems to be something blocking it during transmission. Therefore, evaluation of the notebook halts and the caveMathematica executable generally throws an error. Luckily, putting a working cell or graphic into caveMathematica is easy, allowing for quick proofs of concept. Generally, it involves inserting the code

```
DisplayFunction → ((RenderSZG[#]; #) &)
```

to the plot function or encasing the plot function in RenderSZG.

Possibilities

I have begun toying with the idea of animations for our caveMathematica implementation. I am wondering, however, if the buffer between calculation and display is big enough. In other words, do we have the same issue I had with SZGTevatron, in that the CAVE/CUBE does not have time to render. Once the