HEPSF Google Summer of Code: Faster Matrix Algebra for ATLAS

Dmitry Emeliyanov, Stewart Martin-Haugh

STFC Rutherford Appleton Laboratory

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Evaluation test

The goal of the test is to write a standalone C++ class for a symmetric matrix. This will be the starting point for the project.

You should store only the upper diagonal of a matrix

```
SymMat S = {M(0,0), M(0,1), M(0,2),
            M(1,1), M(1,2),
                    M(2,2)};
```

where M is a generic, not necessarily symmetric square matrix.
You should write

1. A constructor to make a SymMat from an Eigen::Matrix
2. Accessors for S(i,j): S(j,i) should of course return the same as S(i,j)
3. Functions for matrix addition:

   SymMat +/- SymMat

   SymMat +/- Eigen::Matrix
4. Functions for matrix multiplication:

   SymMat∗SymMat

   SymMat∗Eigen::Matrix

If the dimensions of the matrices in these functions don't match, you should throw an exception. Your code should include a few example test cases. Focus on correctness and commenting your code.

Your code should be uploaded to e.g. GitHub. It should work with clang or gcc, C++11 standard on Linux, with clear compilation instructions.