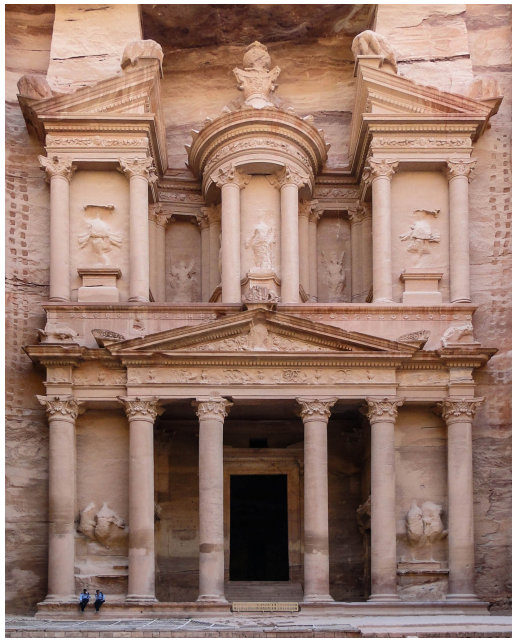
Trilinos and PyTrilinos: An overview

The Trilinos Project

- Open source libraries for scientific computation
- Loosely translated "a string of pearls"
- Organized on the concept of "packages"
- Philosophy:
  - Minimize package interdependence
  - Maximize package interoperability
- URL: http://trilinos.sandia.gov

Packages: Linear Algebra Services

- Epetra
- JPetra
- Tpetra
- EpetraExt



The Treasury at Petra, Jordan

Solvers and Preconditioners

- Linear Solvers
  - Amesos
  - AztecOO
  - Belos
  - Komplex
- Nonlinear Solvers
  - NOX
- Others
  - Anasazi
  - Rythmos
  - MOOCHO
- Preconditioners
  - IFPACK
  - ML

Tools and Utilities

- Teuchos
- Isorropia
- PyTrilinos

PyTrilinos

- Python wrappers for many useful Trilinos packages
- Uses SWIG for wrapper generation
- Fully compatible with Numpy

http://trilinos.sandia.gov/packages/pytrilinos/

helloPyTri.py

```
#!/usr/bin/env python

from PyTrilinos import Epetra

comm = Epetra.PyComm()

print("Hello, World! My processor number is: "
        +  str(comm.MyPID()))
```