

**CS 491/591 Numerical Optimization -
Project #4
Due Nov 8th**

November 2, 2006

- Derive the weak form for your model PDE problem and implement the formulation in Sundance.
- Use Paraview to evaluate the results.
- Derive the optimality conditions for an optimization problem in which your model physics are the constraints.

Requirements:

- Email a tar file with design and documentation to bartv@sandia.gov and add in subject line “UNM 591 Project 4”. Also, name your tar file as follows: student-lastname_proj4.tar.
- Include your sundance modelproblem.cpp file and any additional .hpp file so that I can run your code.
- Include an image of the results of your forward simulation, preferably a contour plot of a state variable in the computational domain.
- Describe settings of any boundary conditions, variables, and coefficients.
- Include your latex write-up of the optimization problem.

Note: the preferred documentation software is latex (with dvi, ps or pdf output)