## Advanced Physics
## Assignment 4

*To be submitted in pairs of two students*

# Wall of Boxes

In the Cyclone engine, create the following little game, demonstrating simulation of mass and inertia (both positional and rotational).

- A wall of boxes, all of different mass, stacked in a grid of at least 4x4 boxes
- A box at some distance to the wall, that can be launched toward the wall by the user (e.g. space key)
- Some way for the user to change the aim of the projectile box (e.g. mouse movement or arrow keys)
- Some way of changing the mass of the projectile box (e.g. + and - keys)
- Two way to reset the simulation: either with the same masses or with newly randomized masses (e.g. R and N for Retry or New)
- A new projectile box should be created a couple of seconds after the current box has been launched

**Requirements:**

- all objects (including the projectile) will be equilateral boxes of the same size
- all boxes in the wall should have randomized mass
- the current mass of the projectile box should be shown, as well as the controls
- the scale of space and mass is entirely up to you, but you have to make sure that the indicated mass feels natural to the user
  (it is allowed to scale just the display value)

**Important:**

- You can use the standard GLUT visualization also used by the author
- You are not allowed to use the sample code as a starting point for your assignment, you have to build your own project from scratch
- Take care to document your code: make sure there are enough comments for me to see the steps you have taken to solve the assignment!
  (You are allowed to include a small report (max. 1 page) if you prefer not to write long portions of comments in the code, although the latter is recommended)

**Deadline: 20-3-2014 23:59**
**.zip with source code and Windows or Mac binary,**
**via VLO Dropbox -> Stephan van der Feest**

**Attn.: Include both your names and student numbers: Any claims of cooperation will only be admitted if both names are present in the submission**