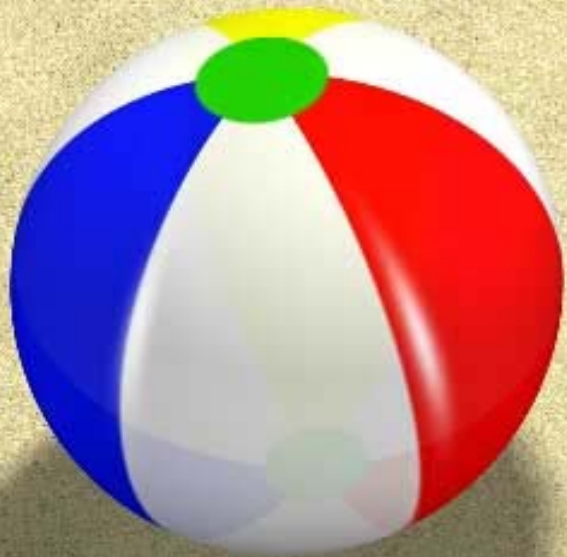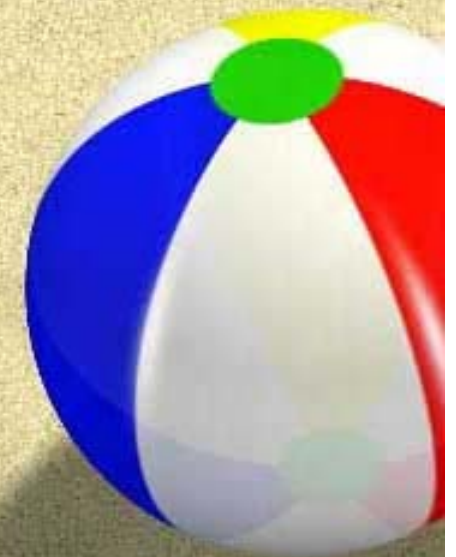# Problems with current physics lists setup

Gabriele Cosmo
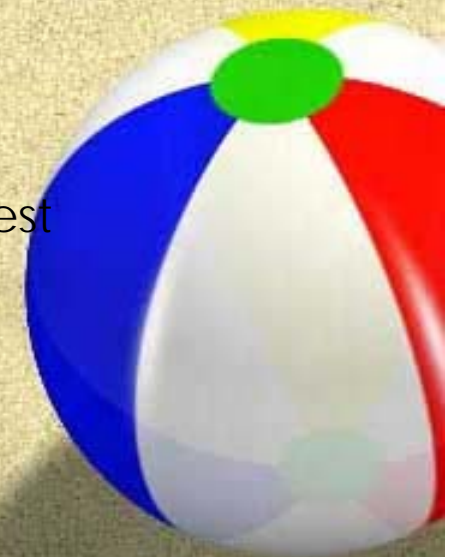
Installation problems - 1

- Physics lists installation not part of the default Geant4 libraries installation
  - Must be done "manually"
  - Requires a double step to users
    - Environment generated by the Configure script does not take into account issues related to physics lists installation
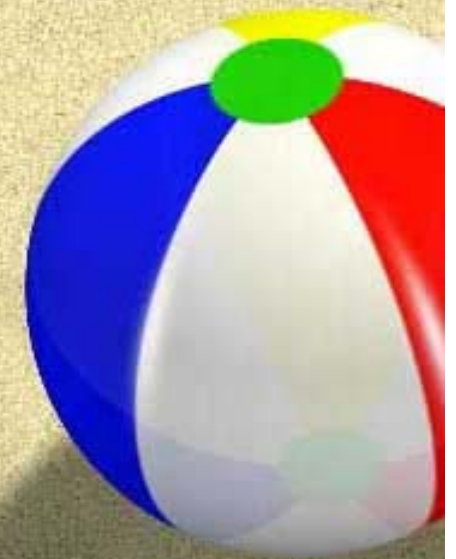   - Users are required to first configure their environment and then modify it to manually build the physics lists

Installation problems - 2

- Complicates integration of Geant4 inside existing frameworks
  - Makes use of the **EXTRALIBS** environment variable
    - Variable reserved for integration of user libraries or third party libraries
    - Forces users to take care of linking order of libraries
  - Does not follow the standard rules for installation of the libraries
    - Libraries installed in a different path than the rest of the Geant4 libraries
    - Path which can be configured generating confusion and error-prone setups
  - Concerns also recently expressed by LHC experiments

Installation problems - 3

☾ Configuration NOT allowed:
- ☾ Usage of granular libraries and shared libraries for the physics lists

☾ Generating <u>major</u> disruption for users
- ☾ … and burden for users support !
- ☾ One out of two users building the physics lists hits this problem and expresses concerns
  - ☾ The others probably don't even know about the existence of the physics lists

Some other concerns (just some) ...

- Incomplete or missing documentation
- Excessive pollution of libraries
  - One library built per physics list class (?!)
- High level of dependency
  - The *Packaging* "octopus" library
- Lack of real support and maintenance commitment
  - No real planning in the development and monitoring of its evolution
- Lack of integrated testing
  - Does not follow development in the physics and fixes come always late
  - Out of sync with release validation