



**Figure 3.16.** Structure of the hierarchy tree of the RCS. Different branches describe the RPC system from geographical and hardware points of view. All commands go down the hierarchy, while information and error messages are reported upwards.

FSM takes care of loading from the database the right values to apply and alarm settings. The states from central DCS are translated in meaningful states for RPC. For this reason a transitional state (RAMPING) has been added to the previous states. It describes the situation in which the high voltage of one or more chambers is ramping up or down. The STANDBY state is used for the RPC detector as a safe state in which the LV channels are ON, while the high voltages are at an intermediate and safe value. This state has been implemented for test and calibration runs or for period with a “not stable” beam and magnet ramping conditions.

### 3.8.3 The Graphical User Interface (GUI)

The GUI is developed to be an intuitive tool to control and monitor the detector, easy to use also for non-experts and able to protect the system from any dangerous action. It is a collection of panels in PVSS language and offers the following functionalities:

- an easy navigation throughout the entire system structure, thanks to a combination of text, graphical objects and synoptic diagrams;
- visualization and setting of any process variable;
- global parameter setting, thus speeding operations and reducing human errors;
- plots, diagrams, histograms, and tables for a first online analysis of the detector behavior;