In the framework of the interest in radioactive ion beam facilities, as well as in low energy ion traps, special diagnostic tools are needed in order to cope with low and very low intensity beams, sometimes also at very low energy. Particle detection techniques seem attractive under several aspects. In this talk I will describe the main features of devices that we have tested throughout several years, as well as of those we are currently employing, at the EXCYT and FRIBS facilities at INFN-LNS. I will also focus on a device that could be successfully employed for laser-generated-plasma diagnostics.