

## **Some experiences on the way to biological single ion experiments**

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One of the experimental cornerstones on the way to the irradiation of single biological cells with single, precisely aimed high energy ions is the reliable detection of hits. Another one is the necessity to keep the cells wet during irradiation. Therefore, the cells have to be separated from the microprobe vacuum by a thin window. This window should be extremely thin to minimise scattering. At the same time it should be strong enough to withstand atmospheric pressure and it should be radiation hard. During a previous conference Cholewa et al. [Nucl. Instr. and Meth. B 130 (1997) 275] proposed to use a thin diamond foil to serve as vacuum window and as part of the hit detection system. Later, Kamiya et al. [Appl. Phys. Lett. 71 (13) (1997) 1875] tested the hit detection efficiency for alpha-particles using boron-doped diamond. To confirm these results for heavy ions we have checked the relative merits of diamond foils compared to those of other materials. In addition to this we have looked for other sources of problems which might prevent us from hitting single cells with the desired accuracy of 99.9%.