

## **Preparation of ion-track membranes of poly(*p*-phenylene terephthalamide): Control of pore shape by irradiation with different ion beams**

Suzuki Y, Yamaki T, Koshikawa H, Asano M, Voss KO, Neumann R, Yoshida M  
*Nuclear Instruments and Methods in Physics Research B* **260** (2007) 693–695

The preparation of ion-track membranes of thermally stable poly(*p*-phenylene terephthalamide) (PPTA) was performed by ion beam irradiation followed by chemical etching with a sodium hypochlorite solution. Cylindrical pores were observed in the membrane irradiated with  $^{197}\text{Au}$  and  $^{238}\text{U}$  ions at an energy of 11.1 MeV/n. In contrast, funnel shape pores appeared in the membrane irradiated with  $^{84}\text{Kr}$ ,  $^{102}\text{Ru}$  and  $^{129}\text{Xe}$  ion at energies of 6.2, 3.6 and 3.5 MeV/n, respectively. The  $^{197}\text{Au}$  and  $^{238}\text{U}$  ion irradiation was found to exhibit more than four times larger sensitivity to the track etching under the same etching conditions. Consequently, the pore shape can be controlled by the masses and energies of the irradiated ions, in close relation to the etching sensitivity of the track.