

**New Radiation Monitoring System for the ESRF,**  
P. BERKVENS, P. COLOMP, ESRF - The European Directive 96/29/EURATOM redefines legal radiation protection rules. Each member country must modify its national law accordingly before May 2000. One major implication will be reduction of the annual dose limits. For the public this limit is reduced from 5 mSv to 1 mSv. At the ESRF, the experimental area is classified a free access area, dose limits being well below the present annual limit of 5 mSv. Whereas at present this is easily proven using film or TLD dosimeters, this will be impossible with the new limits. Under normal conditions the shielding of the storage ring is amply sufficient to reduce dose rates well below 0.5  $\mu$ Sv/h, but much higher values are possible under unusual injection conditions or during accidental beam losses. Extensive radiation measurements under such conditions have been done, together with numerical simulations. This allowed us to define the areas where the highest dose rates occur in case of accidental beam losses or injection problems. This paper describes these measurements and the resulting radiation monitoring system which should allow the ESRF to maintain its experimental area as a free access area.