A Control System for the ESRF Synchrotron Radiation Therapy Clinical Trials

C. Nemoz *a, J.F. Adama,b,c, G. Berruyeera, T. Brocharda, Hervé Gonzaleza, Ricardo Hinóa, H. Elleaumea,b, M. Reniera , P. Berkvensa

a European Synchrotron Radiation Facility, F-38043 Grenoble 9, France.
b INSERM, U836, F-38042 Grenoble 9, France
c Univ Grenoble 1, F-38041 Grenoble 9, France
A Control System for the ESRF Synchrotron Radiation Therapy Clinical Trials

C. Nemoz, J.F. Adam, G. Berruyer, T. Brochard, Hervé Gonzalez, Ricardo Hino, H. Elleaume, M. Renier, P. Berkvens

a European Synchrotron Radiation Facility, F-38043 Grenoble 9, France.
b INSERM, U836, F-38042 Grenoble 9, France
c Univ Grenoble 1, F-38041 Grenoble 9, France
Principe of SSRT irradiation

Cerebral tumour loaded with high-Z contrast agent (Iodine)

X-ray monochromatic Beam tuned to Iodine K-edge
Principle of SSRT irradiation

Cerebral tumour loaded with high-Z contrast agent (Iodine)

X-ray monochromatic Beam tuned to Iodine K-edge
Principle of SSRT irradiation

- Cerebral tumour loaded with high-Z contrast agent (Iodine)
- X-ray monochromatic Beam tuned to Iodine K-edge
Principe of SSRT irradiation

Cerebral tumour loaded with high-Z contrast agent (Iodine)

- Monochromatic beam
- Conformal collimators

X-ray monochromatic
Beam tuned to Iodine K-edge
Principe of SSRT irradiation

Cerebral tumour loaded with high-Z contrast agent (Iodine)

X-ray monochromatic Beam tuned to Iodine K-edge
3D-Tomography Alignment
3D-Tomography Alignment
3D-Tomography Alignment

Control Panel

[Diagram of a control panel with various settings and options for tomography alignment]
3D-Tomography Alignment

Control Panel

- High Frequency Monitor 1 kHz
- Dose Rate +15%
- Chair Speed -50%
- Fast Shutter Closed
3D-Tomography Alignment

Control Panel

- High Frequency Monitor 1 kHz
- Dose Rate +15%
- Chair Speed -50%
- Fast Shutter Closed
- RF Storage Ring Trip!!