

Risk Assessment of Magnetic Field Exposure upto 14 T

1. Location

DNP MAS NMR Hall at the Sir Peter Mansfield Magnetic Resonance Centre (SPMMRC)

2. Responsible person: Subhradip Paul/Walter Köckenberger

3. Brief Description of Work Activity

Occupational exposure to strong magnetic field is expected, though the magnets present in the hall are well shielded and the 5 gauss lines can be assumed to be only at the legs of the magnet.

4. List of Main Hazards

- Pacemakers and other biomedical implants may be affected and must be reported prior to use of the facility.
- Loose magnetic objects will be dangerous as they might become projectile under the effect of the magnetic field.
- Jewellery and other metallic ornaments will be affected by the magnetic field and should be avoided.
- The magnets are well shielded and hence movement close to the magnet will not affect but users are strongly advised against any movement below or above the magnets, particularly the 7.2 T gyrotron magnet.
- There are no acute or chronic effects which have been observed.

5. Hazard Rating (1-4): 2

6. List of Control Measures at Place

Access Control

1. Key pad controlled security doors, warning signs and access instructions are posted in the centre as well as the laboratory door.
2. Staff, visitors, and users are carefully screened. Visitors needing to enter magnet halls will be issued an orange badge, or green badge (authorised personnel). Visitors with red badge cannot enter the magnet halls.

7. Risk Factor (1-4): 1

8. Hazard x Risk: 2

9. Comments:

International guidelines are developed using the precautionary principles, however in our case the magnets are ultra-shielded and no researcher will be exposed to the acute magnetic fields. So practically the magnets in our halls are safe. However they are harmful for patients with implants and they will not be allowed to approach the magnets.

10. See also:

Bruker safety manual for more instructions. This can be obtained from the facility manager.

X

Subhradip Paul
Research Facility Manager

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