**Manchester Institute of Biotechnology - Risk Assessment**

TUOM_4COL

| **Date:**  28/10/2015 | **Assessed by**:  Joanna Baczynska | **Validated by**:  Tanya Aspinall | **Location**: MIB | **Review date:**  28/10/2016 |
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| **Task**:  Commissioning and use of a home-made magnet holder, neodymium disc magnets and Halbach array in ultrafast transient absorption experiments. |
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| **Activity** | **Hazard** | **Person(s) in danger** | **Existing measures to control risk** | **Risk rating** | **Result** |
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| Magnetic field from a 1 T Halbach array: | Exposure of personnel to fields exceeding more than 200 mT for more than 8 hours  The strong magnetic fields can affect pacemakers and other implanted medical devices. | Staff and other in the lab | The Halbach array is designed to create a strong magnetic field in the centre of the array, while minimising any external magnetic fields. Hall probe measurements show the field is:  - 1 T at the centre of the bore  - 500 mT at the sides decreasing to 100 mT at a  distance of 2 cm and < 1 mT at a distance of 10 cm  - 50 mT at the outer surface decreasing to <1 mT  at a distance of 2 cm  Therefore the time-weighted average limit (over 8 hours) of 200 mT is not exceeded if a hand is held at a distance greater than 2 cm from the centre and sides of the Halbach array.      Warning signs “Caution: Strong Magnetic Fields” and  “Persons with cardiac pacemakers must not enter” are placed at the entrance to the screened areas. | L | A |
| Magnetic field from neodymium disc magnets up to 1.3 T. | Exposure of personnel to fields exceeding more than 200 mT for more than 8 hours  The strong magnetic fields near a neodymium magnet can affect pacemakers and other implanted medical devices. | Staff and other in the lab | The disc magnets are designed to create a strong magnetic field between two discs. The probe measurements show the field is:  -1.3 T in the centre of the gap between two discs separated by 2 mm  -0.35 T in the centre of the gap between two discs separated by 50 mm  Therefore the time-weighted average limit (over 8 hours) of 200 mT is not exceeded if a hand is held at a distance greater than 2 cm from the centre of the gap between discs.  Warning signs “Caution: Strong Magnetic Fields” and  “Persons with cardiac pacemakers must not enter” are placed  at the entrance to the screened areas. | L | A |

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| **Authorisation by PI**  **I confirm that I have considered and understand the experiment and the associated hazards. I am satisfied that all of the hazards have been identified and that the control measures to be followed will reduce the risks to acceptable levels.**  **Print name: Signed:**  **Date:** |

**Declaration by researcher**

**I confirm that I have read this Risk Assessment and that I understand the hazards and risks involved and will follow all of the safety procedures stated.**

**Declaration by PI**

**I confirm that the researcher who has signed below is competent to undertake the work. My counter-signature indicates that I am happy for the work to proceed.**

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| **Name (please print)** | **signed** | **PI countersignature** | **date** |
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