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| Title of Assessment | Superconductivity and Magnetism Labs Risk Assessment | | | Date of assessment | | 07/11/16 |
|  |  |  | | Date for review | | Continuous |
| Department | Physics | | |  | |  |
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| Descriptions of Activities | Risk assessment for laboratory work conducted by Robert Williams pertaining to the research project entitled ‘ExtremeQuantum’ (PI: Dr Paul Goddard). | | | | | |
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| Name of those working to this assessment | Robert Williams | | Any others who may be affected by this assessment | | Other lab users | |
| Assessment carried out by | Robert Williams | |  | | | |
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| Additional information |  |

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| **Foreseeable Significant Hazard** | **Existing control measures** | **Inherent Risk** | **Additional control measures** | **By whom & when** | **Controlled Risk Level** |
| **Sharp laboratory tools – Possible injury to skin** | Follow good laboratory protocol (maintain clear work surfaces and walkways). Store, transport and dispose of sharp tools and objects responsibly, including use of sharps bins. | Low |  | Operator during use of tools, and other personnel entering lab during or after use. | Low |
| **Handling chemical samples – inhalation or ingestion** | Wear appropriate personal protection equipment (PPE). Minimise exposure, and do not ingest. Wash hands after use, and exclude food and drink from laboratories. Read all relevant safety data sheets. | Minor | Ensure spills are cleaned and work surfaces left clean after use.  Online fume cupboard safety training completed.  Online chemical handling safety training and assessment to be completed. | Operator when handling chemicals, and other personnel entering lab subsequently. | V Low |
| **Use of chemical solvents – irritation to skin or eyes** | Use appropriate PPE, as above. Observe all warning labels. If contact is made with eyes then seek immediate medical advice, and follow procedures outlined in COSHH forms. If large quantities are spilled inform a member of facility staff. | Low | Ensure spills are cleaned and work surfaces left clean after use. | Operator when handling solvents, and other personnel entering lab subsequently. | V Low |
| **Use of cryogens: Filling nitrogen dewar and transferring to instruments – oxygen depletion and possible asphyxiation** | Complete relevant cryogenics safety training. Nitrogen dewar fills are conducted outside or in well ventilated areas containing oxygen detectors/alarms. Dewars are not to be accompanied in confined spaces eg: elevators. Instruments are located in large and well ventilated labs. | Major | Online cryogenics safety training and assessment completed. | Operator(s) performing nitrogen dewar fill, or nitrogen transfer. Any other personnel in close proximity or same room at same time or shortly afterwards. | Low |
| **Use of cryogens: Filling nitrogen dewar and transferring to instruments – possible contact with cryogen and cold surfaces** | Suitable training will be provided. Wear appropriate PPE including insulating gloves. | Severe |  | Operator(s) while performing tasks involving cryogen and handling cold framework. | Low |
| **Use of instruments involving large magnetic fields – possible interference with pacemakers or metal implants** | Ensure lab is locked (key-code access) when the room is unoccupied and the magnet is charged, and ensure warning signs correctly displayed. Warn any people who enter lab while magnets are charged. | Severe |  | Operator(s) using instrument, and other personnel present while magnet is charged. | Low |
| **Use of instruments involving X-ray generation (Ionising radiation source) – possible radiation burns or cellular damage** | Complete relevant ionising radiation safety training, and receive instruction in proper use of each instrument to be used. Diffractometers are located in designated X-ray areas and include interlocking doors and shields to prevent radiation exposure to local area, coupled with warning systems to indicate source is in use. | Severe |  | Operator(s) using instrument, and other personnel present while radiation source is in use. | V Low |
| **Use of evacuable pellet dies – possible component failure and impact injuries** | Suitable training in equipment use shall be provided. Components are cleaned and inspected before each use, and must not be modified or tampered with. Shields are in place to protect the user when the hydraulic press is in use. Safe working loads are to be observed. | Minor |  | Operator(s) using equipment, and other personnel present while hydraulic press is in use. | V Low |
| **Moveable platform – falls** | Ensure that brakes are firmly applied before mounting the platform, and check surfaces and areas below platform are free of clutter and spills. Do not overreach over platform rails or move heavy objects unaided. | Minor |  | User | Low |

**Work should not be carried out until the assessment is completed to a suitable & sufficient level and all required control measures are in place.**

Is assessment suitable and sufficient Yes

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| Any further actions required to allow work to commence | |  | | |
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| Approved By |  |  | Position |  |
| Date |  |  |  |  |

Please print a copy, sign it and keep for your records

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|  | **Severity of injury** | | | | |  |  | |
| **Likelihood** | **Superficial** | **Minor** | **Serious** | **Major** | **Extreme** |
| Unlikely | **Very low** | **Very low** | **Low** | **Low** | **Moderate** |
| Possible | **Very low** | **Low** | **Low** | **Moderate** | **High** |
| Likely | **Low** | **Low** | **Moderate** | **High** | **Very high** |
| Very likely | **Low** | **Moderate** | **High** | **Very high** | **Very high** | **Overall Risk Rating** (highest level found) | **Low** |
| Extremely likely | **Moderate** | **High** | **Very high** | **Very high** | **Very high** |

*See ‘Matrix for risk evaluation’ for further guidance.*