

# CCRI Facilities list

### Introduction

This document is a list of the major facilities to which metrology institutes have access, to facilitate sharing their use for new comparison exercises or for research. It is not intended to be an exhaustive list, facilities that are common to many institutes are not listed; rather, it is focused on large facilities such as electron LINACS, medical systems and proton accelerators. Further details and other institutes may be added on request.

S M Judge

CCRI Executive Secretary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Country | Institute | Contact person | Access to: |  |
| Argentina | CAE-CNEA | Christian Balpardo | Electron LINAC |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | Mass spectrometer |  |
|  |  |  | Radioactive waste scanner |  |
|  |  |  | Nuclear medicine imaging |  |
|  |  |  | Accelerator mass spectrometry facility |  |
|  |  |  | Mono-energetic neutron facility |  |
|  |  |  | High energy neutron facility |  |
|  |  |  | Workplace neutron field facility |  |
| Austria | BEV | Franz Josef Maringer | Radiotherapy Co-60 source |  |
| Belgium | SCK-CEN | Liviu-Cristian Mihailescu | Electron LINAC |  |
|  |  |  | Proton therapy facility |  |
|  |  |  | Radiotherapy Co-60 source |  |
| Canada | NRC | Raphael Galea | Electron LINAC |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | Manganese bath |  |
|  |  |  | Workplace neutron field facility |  |
| Denmark | DTU | Claus Andersen | Electron LINAC |  |
|  |  |  | Proton therapy facility |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | MRI LINAC |  |
|  |  |  | Low energy (80 – 200 keV) electron accelerator |  |
| Egypt | NIS | Ahmed El-Sersy | Radiotherapy Co-60 source |  |
|  |  |  | Pulsed radiation protection level source |  |
|  |  |  | Radioactive waste scanner |  |
|  |  |  | High energy neutron facility |  |
|  |  |  | Workplace neutron field facility |  |
|  |  |  | Manganese bath (under construction) |  |
| Finland | STUK | Antti Kosunen | Radiotherapy Co-60 source |  |
|  |  |  | Mass spectrometer |  |
|  |  |  | Mono-energetic neutron fields |  |
| France | IRSN | Vincent Gressier | Electron LINAC |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | Mono-energetic neutron fields |  |
|  |  |  | Workplace neutron fields facility |  |
| France | LNHB | Isabelle Aubineau-Laniece | Electron LINACs |  |
|  |  |  | Radiotherapy Co-60 source (radiotherapy) |  |
|  |  |  | High dose-rate brachytherapy sources (Co-60 & Ir-192) |  |
|  |  |  | Pulsed and continuous x-ray generators |  |
|  |  |  | Radiation protection dose-rate sources (Co-60 & Cs-137) |  |
|  |  |  | CT scanner |  |
|  |  |  | Beta sources (Sr-90, Pm-147, Kr-85) |  |
|  |  |  | Mass spectrometer (ICP-MS) |  |
|  |  |  | Synchrotron x-ray facility (SOLEIL) |  |
|  |  |  | Bolometry (including metallic magnetic calorimeters) |  |
|  |  |  | Manganese bath |  |
| Germany | PTB | Annette Röttger | Electron LINAC |  |
|  |  |  | Proton therapy facility |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | Pulsed radiation protection level source |  |
|  |  |  | MRI LINAC |  |
|  |  |  | Mass spectrometer |  |
|  |  |  | Mono-energetic neutron fields |  |
|  |  |  | Workplace neutron field facility |  |
|  |  |  | Radionuclide source neutron fields |  |
|  |  |  | Alpha beams (0.4-26 MeV) |  |
|  |  |  | He-3 beams (up to 6 MeV) |  |
|  |  |  | 20 MeV cyclotron |  |
|  |  |  | Thermal neutron field |  |
| Greece | EEAE | Argyro Boziari | Electron LINAC |  |
|  |  |  | Radiotherapy Co-60 source |  |
| Japan | NMIJ/AIST | Tadahiro Kurosawa | Electron LINAC |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | Mono-energetic neutron fields |  |
|  |  |  | High-energy neutron facility |  |
|  |  |  | Workplace neutron field facility |  |
|  |  |  | Thermal neutron field (graphite pile) |  |
| Moldova | INM | Efimia Luchian | Pulsed radiation protection level source |  |
| Netherlands | VSL | Jacco de Pooter | Electron LINAC |  |
|  |  |  | Proton therapy facility |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | MRI LINAC |  |
| Poland | GUM | Adrian Knysiak | Radiotherapy Co-60 source |  |
| Slovenia | IJS | Denis Cindro | High dose-rate sources |  |
|  |  |  | Mass spectrometer |  |
| Spain | CIEMAT | Miguel Embid | Electron LINAC |  |
|  |  |  | Proton therapy  |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | Mass spectrometer |  |
|  |  |  | Radioactive waste scanner |  |
|  |  |  | Nuclear medicine imaging |  |
|  |  |  | Manganese bath |  |
|  |  |  | Mono-energetic neutrons facility |  |
|  |  |  | Workplace neutron field facility |  |
| Sweden | SSM | Linda Persson | Radiotherapy Co-60 source |  |
|  |  |  | Mass spectrometer |  |
| Switzerland | METAS | Christian Kottler | Electron LINAC |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
| UK | NPL | James Parkin | Electron LINAC |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | High dose-rate sources |  |
|  |  |  | Pulsed radiation protection level source |  |
|  |  |  | Mass spectrometer |  |
|  |  |  | Radioactive waste scanner |  |
|  |  |  | Nuclear medicine imaging |  |
|  |  |  | Manganese bath |  |
|  |  |  | Mono-energetic neutron facility |  |
|  |  |  | Workplace neutron field facility |  |
|  |  |  | Thermal neutron facility |  |
| USA | NIST | Michael Mitch | Electron LINAC |  |
|  |  |  | Radiotherapy Co-60 source |  |
|  |  |  | Mass spectrometer  |  |
|  |  |  | Nuclear medicine imaging |  |
|  |  |  | Manganese bath |  |
|  |  |  | Mono-energetic neutron fields |  |
|  |  |  | High energy neutron facility |  |
|  |  |  | Workplace neutron field facility |  |
|  |  |  | High-flux cold neutron beam |  |

Notes:

1. The list intends to capture the large or less common facilities available to NMIs to use; it should not be interpreted as a list of all the facilities available (the definition of large / less common is a matter of judgement). For example, x-ray generators and radionuclide sources for radiation protection calibrations are not reflected in the list above as these can be found in secondary standard dosimetry laboratories worldwide.
2. Data are presented as supplied by the institute.
3. Contact persons are given as the person who replied to the questionnaire (with the exception of the PTB where there has been a change in roles).