

## CEA-LIST and the BIPM sign agreement on metrology for radiotherapy

Saclay, July 19, 2017 - Philippe Watteau, Director of CEA-LIST, the CEA Tech Institute, and Martin Milton, Director of the BIPM (International Bureau of Weights and Measures), announced the signature of an agreement enabling the BIPM to use the medical radiotherapy accelerators at the Doseo<sup>1</sup> platform. These facilities will be used to compare reference standards and dosimeter calibrations to meet international requirements regarding traceability in external radiotherapy, some of the most stringent requirements in terms of precision.

CEA-LIST's Doseo platform, the development of which has been strongly supported by the French National Metrology and Testing Laboratory (LNE), which is the reference metrology laboratory in France, is used for dose metrology for radiotherapy (performed by the LNHB<sup>2</sup>), as well as for R&D and training. Together, CEA-LIST and the BIPM have the expertise to support high-level scientific studies in the field of metrology for radiotherapy.

The BIPM will thus be able to use the latest-generation medical-grade accelerators for radiotherapy available at the Doseo platform to:

- **carry out international comparisons** of primary ionizing radiation dosimetry standards used by national metrology laboratories;
- **calibrate the reference dosimeters** used by national metrology laboratories which do not have primary reference standards;
- **carry out R&D projects** in the field of ionizing radiation metrology.



*left: Philippe Watteau, Director of CEA-LIST, a CEA Tech Institute; right: Martin Milton, Director of the BIPM, the International Bureau of Weights and Measures © CEA*

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<sup>1</sup> Doseo, the platform for radiotherapy and medical imaging technology, located in Saclay, is coordinated by the CEA, the French National Cancer Institute (INCa), the French National Metrology and Testing Laboratory (LNE), and is funded through France's *Investissements d'Avenir* (Investment for the Future) program, the Essonne General Council, the Ile-de-France Regional Council, the European Regional Development Fund (ERDF), the French Directorate General for Enterprise (DGE) and the Medicen Paris Region competitiveness cluster.

<sup>2</sup> LNHB: the CEA-LIST's Henri Becquerel National Laboratory focuses on the metrology of ionizing radiation and is responsible for the national reference standards used for measuring radioactivity and dose measurements. It is part of France's national metrology network, coordinated by the LNE.

This agreement comes at a time when there is increasing demand in France and worldwide for more precise control over ionizing radiation, especially in radiotherapy, where we are seeing the rapid development of new techniques designed for more personalized treatment with a view to minimizing damage to healthy tissue.

#### **About CEA-LIST**

*CEA, the French Alternative Energies and Atomic Energy Commission, is a public institution for scientific, technical and industrial research, and is classed as a "public authority with industrial and commercial activities" (or EPIC). It is a key player in research, development and innovation in four main areas: defense and security, low-carbon energy (nuclear and renewables), technology research for industry, and fundamental research in the physical sciences and life sciences. Drawing on its widely acknowledged expertise, CEA actively participates in collaborative projects with a large number of academic and industrial partners.*

*Within CEA Tech, the CEA's Technological Research Division, CEA-LIST carries out research on intelligent digital systems. Its R&D programs, all with potentially major economic and social implications, focus on advanced manufacturing, cyberphysics systems, artificial intelligence and "digital patient" technology. In developing cutting-edge technology, CEA-LIST helps its partners enhance their industrial competitiveness through innovation and technology transfer. Thanks to the quality of the research it conducts with its partners, CEA-LIST has been a Carnot Institute since 2006 (Institut Carnot TN@UPSaclay). Find out more at: [www-list.cea.fr](http://www-list.cea.fr).*

#### **About the BIPM**

*The BIPM is an intergovernmental organization set up in 1875 with the signing of the Meter Convention. One of its main roles is to coordinate the implementation and improvement of the international measurement system based on the International System of Units (SI), with a view to guaranteeing the accuracy and comparability of measurement results. Since it was founded, the BIPM has been located at the Pavillon de Breteuil site in Sèvres (France). Since 1960, the BIPM's activities have included metrology for ionizing radiation, and particularly the measurement of radioactivity (Becquerel) and dosimetry (Gray). In this field, the BIPM develops reference standards, coordinates international comparisons of reference standards between national metrology institutes, and provides calibration services to national metrology institutes which do not have their own "primary" standards.*

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