

Calls H2020: RADIATION PROTECTION AND MEDICAL APPLICATIONS.

NFRP-12: Further integrating Radiation Protection research in the EU.

Specific Challenge: Protecting people and the environment from the potentially harmful effects of ionising radiation remains a challenge in the context of expanding practices involving radiation in the EU, notably in the medical sector. It is also important for the harmonisation of EU planning of response to a potential radioactive contamination of territories, taking into account post-accident and existing situations of naturally occurring radioactive material. It remains important for the management of radioactive waste, for the safe implementation of nuclear installations' decommissioning. Scientific knowledge on which norms are based and adopted is progressing through the accumulation of knowledge on the effects of low-dose ionising radiation on peoples' health and the environment. Complexity of data handling, interpretation and exploitation requires a multidisciplinary approach of the field that includes radiobiology, dosimetry in specific fields, epidemiology, radioecology, radiation-based imaging and therapeutic techniques, emergency preparedness and human science and society.

Scope: This action should dwell on scientific outputs from past programmes in this field and add specific knowledge in areas of most promising research outcome or most significant contribution to peoples' health and environment protection and should consider the priorities as identified by the European Radiation Protection Platforms (MELODI, EURADOS, NERIS, ALLIANCE, EURAMED). The proposal should focus on lifting key uncertainties about the risks from low-dose radiation and resolving challenges these uncertainties pose for the implementation of Directive Euratom 2013/59. In particular, it should address people's exposures to radon in terms of risk assessment and mitigation. The proposal should also investigate innovative concepts to explain the varied responses of biological and ecological systems, due to their own diversity, to the diverse pathways by which radiation release energy to bio-molecules, cells and organ tissues and propose innovative ways to incorporate existing concepts into risk prevention, assessment and management, including stakeholder's involvement processes. The proposal should include shared experimental work between the European research infrastructures in radiation protection identified in previous programmes. It should also include the exchange of scientists in order to cross-fertilise teams and mutualise the best use of infrastructures. The benefit of the proposal for preservation of the integrative process of research teams having a regulatory mandate for radiation protection research and teams able to contribute to knowledge by their proximity with the wider research community will also be considered during evaluation.

At least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral researchers and trainees supported through the action (see Conditions for the Call- Eligibility and admissibility conditions).

The Commission considers that proposals requesting a contribution from the Euratom Programme up to **EUR 18.0 million** would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

This action will lead to the provision of more consolidated and robust science-based policy recommendations to decision makers in the area of radiation protection. This will be achieved by further integrating the radiation protection scientific community at EU level, leading to a better coordination of research efforts. In the long term, this knowledge will translate into additional or improved practical measures in view of the effective radiation protection of people and the environment.

Type of Action: Research and Innovation Action (**100% subvención**). Para proyectos de investigación.

DATOS IMPORTANTES:

- ✓ **Expected opening:** 15 May 2019
- ✓ **Expected deadline:** 25 Sept 2019
- ✓ **TOTAL BUDGET:** 18 M€
- ✓ **SINGLE-STAGE**, full proposal aprox. 70 pages. NO pre-proposal.

NFRP-14: Improving low-dose radiation risk appraisal in medicine.

Specific Challenge: Nowadays medical care extensively uses ionising radiation for diagnostic and therapy. Together with natural radiation, medical applications are the main contributor to the exposure of the European population to ionising radiation. The use of appropriate radioisotopes in nuclear medicine in diagnostic and therapy (theranostics) is progressing. The reinforced risk appraisal of medical exposure will reinforce consideration of benefits. It includes the selection of appropriate radioactive cytostatic compounds and the establishment of adequate controls of their discharges in water streams by selecting

short-lived radioisotopes that take into account the protection of workers, carers and comforters, the public and the environment. These progresses will be faster if more certainty about overall detriment is available. Moreover, the medical sector is the best place to keep record of the overall health condition of patients. Thus, using data of patients in the medical sector together with radiation exposure records will improve knowledge. Previous funding efforts have launched collaboration between radiological protection specialists and medical doctors. It deserves further collaboration as results can be used for other exposure situations.

Scope: This action should add clarity on detriment from new medical applications of ionising radiation in view of their fast deployment. This should include harmonised patient data collection from different disciplines and treatment approaches in order to enable deduction of the mechanisms leading to health detriment and to enable improved treatment. This should apply due consideration to double causation and peculiar conditions to medical procedures. This action should take into account the gap analysis performed by MELODI, EURADOS and EURAMED, and address the key issue of individual sensitivity and susceptibility to radiation. The proposal should include methods for radiation detriment appraisal with demonstrable shift from the current metrics. It should take due account of previous research that is cross-cutting with health and radiological protection. This data should include data collected from imaging procedures benefiting to the most sensitive, extensive and long lasting followed-up category of patients. It should also include data on most exposed medical staff as well as patients of nuclear medicine, including theranostics. It should also provide recommendations on radiological protection for the development of new applications of radiation in medical care, per category and per procedure. It should involve radiology and therapy equipment manufacturers or their associations, European associations of researchers in this field, organisations having a regulatory mandate for radiation protection research from Member States or EU bodies and universities and hospitals. It should also involve radioisotope developers and suppliers. Proposals in this topic should take into consideration risk communication and the ethics of medical applications.

At least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral researchers and trainees supported through the action (see Conditions for the Call- Eligibility and admissibility conditions). The Commission considers that proposals requesting a contribution from the Euratom Programme up to EUR **6.0 million** would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

New applications of radiation in medical care will be able to use fast-track approval procedures thanks to the better appraisal of their possible health detriment. This action will improve risk assessment capabilities of the two main sources of radiation exposure of the



European population through improved knowledge on internal exposure. In the long term, it will help controlling the discharge of cytostatic compounds in the environment.

Type of Action: Research and Innovation Action (**100% subvención**). Para proyectos de investigación.

DATOS IMPORTANTES:

- ✓ **Expected opening:** 15 May 2019
- ✓ **Expected deadline:** 25 Sept 2019
- ✓ **TOTAL BUDGET:** 6 M€
- ✓ **SINGLE-STAGE**, full proposal aprox. 70 pages. NO pre-proposal.