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Metrologický projekt **GuideRadPROS :** Implementace norem pro dozimetry pro radiační ochranu

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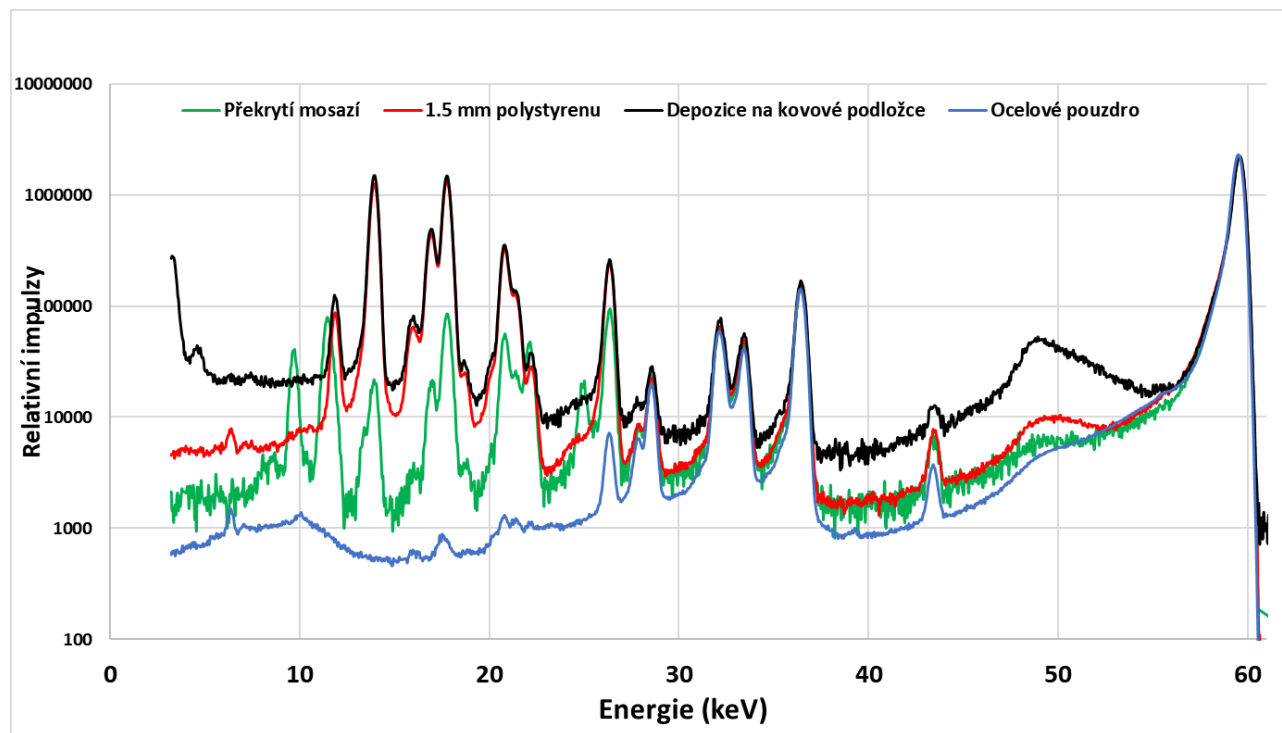
Projekt

- ▶ Evropský projekt, 2023-2026;
- ▶ Metrologické instituty zejména z EU;
- ▶ Účelem projektu je poskytnout pokyny a protokoly pro konzistentní a harmonizovaný přístup k měřením a kalibracím pro účely radiační ochrany podle normy ISO 4037;
- ▶ Cíle:
 - Vysvětlení nesrovnalostí ve stanovení polotloušťky (HVL) různými přístupy (spektrometrie, dozimetrie);
 - Příprava validovaných postupů a návodů pro typové zkoušky a pro kalibraci dozimetrů pro radiační ochranu;
 - Příprava implementace nových operačních veličin ICRU 95 do norem;
 - Porovnání spektrometrických technik mezi metrologickými instituty za účelem stanovení parametrů referenčních polí pro kalibrace dozimetrů pro radiační ochranu.

Příklad

- ▶ Vyjmutí konverzních koeficientů z fluence na operační veličiny pro radionuklid ^{241}Am z normy
 - Nízká energie -> záleží na typu zapouzdření;
 - Nutno znát spektrum -> umět změřit spektrum NEBO zavést do normy konverzní koeficienty pro více typů ^{241}Am zdrojů.

| Pouzdro | $E_{\text{stř}} \text{ (keV)}$ | $\Phi \rightarrow H^*(10) \text{ (Sv/Gy)}$ |
|-------------------|--------------------------------|--|
| Pokovený lak | 36.4 | 0.44 |
| 1.5 mm polystyren | 37.5 | 0.48 |
| mosaz | 53.7 | 1.4 |
| ocel | 58.8 | 1.7 |



Těšíme se na Vás u našeho posteru.

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Metrologický projekt GuideRadPROS: Implementace norem pro dozimetry pro radiační ochranu

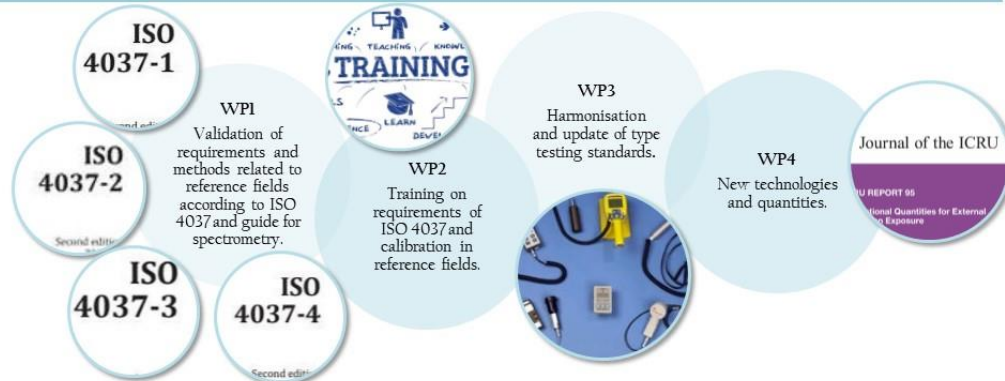
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NEED

The reference calibration X-ray and gamma-ray radiation fields for radiation protection are defined in the ISO 4037 standard. Its implementation needs a coordinated effort to help smaller and emerging calibration laboratories. Moreover, there are deficiencies in the data. The IEC standards give conflicting requirements for the dosimeters, and the standards need to be harmonized and future standardization needs must be analysed. New radiation protection quantities are proposed in ICRU 95 report. This requires a complete revision of the type test standards and characterization of existing dosimeters to analyse what modifications are necessary.

OBJECTIVES



IMPACT

For standardization bodies more comprehensive standards, wider implementation, harmonization of type testing standards and analysis of future harmonization needs.

For laboratories implementation of ISO 4037 standards and more comprehensive data for radiation dosimetry. Reduced calibration uncertainties resulting in more reliable services and happy customers.

For industry harmonized type testing standards, analysis of changes that are needed to implement new quantities introduced by ICRU 95. Foster the competitiveness of European manufacturers.

For research and development more accurately specified radiation fields and new documented spectroscopic methods.

For regulators basic data and methods to update the legal dose limits and the Basic Safety Standard 2013/59/Euratom.

For society more reliable estimates of occupational and population doses

PROGRESS BEYOND STATE OF THE ART

New methods are developed and disseminated to implement and update the ISO 4037 standard family. More accurate reference beams are established.

Regulators, manufacturers and standardization bodies are provided with information how to implement new quantities and what are future needs for the standards.

❖ A comprehensive overhaul of radiation protection dosimetry



JRP 22NRM07 GuideRadPROS Consortium (Harmonisation, update and implementation of standards related to radiation protection dosimeters for photon radiation)



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