



ID de Contribution: 54

Type: **Invited talk**

## Modern Universal Standardized Trends in Worker and Public Exposure Monitoring and Control in 21st Century by Sohrabi URPS-based Hypothesis

*lundi 27 juin 2022 09:15 (45 minutes)*

The Universal Radiation Protection System (URPS) has been hypothesized by Sohrabi in order to address the many deficiencies existing in current worker and public exposure monitoring and control[1-3]. This paper while briefly presents the philosophy, concepts, and methodologies of the URPS hypothesis, it emphasizes and proposes a standardized global worker and public exposure monitoring system. A worker is committed lifetime since birth to non-occupational exposures in particular from unfractionated natural background (NBG) radiation as a member of public. According to URPS, a “worker” is a member of public committed to also to non-occupational exposure lifetime plus occupational exposure from radiation work”[1,2]. Accordingly, a worker and public currently suffer from lacking standardized trends on; (a) risk estimates and accepted risk model, (b) dose limit, (c) correct personal dosimetry, (d) occupational fractionated exposures, and (e) integrated dose system. The URPS hypothesizes equal human health-effect risks per unit radiation dose either from natural or man-made sources; integrates all individual doses; considers worker as member of public; conserves cause and effects for risk estimation; uses fractionation weighting factors; proposes a “URPS Model” for bridging “linear no-threshold and hormesis models, formulates an example dose limit for worker and public, and provides new exposure definitions[1-9]. By considering these concepts and methodologies and in order to standardize workers and public exposure towards integration of doses, individual exposure monitoring and control philosophy, concepts and methodologies are proposed and formulated compared to those of ICRP[10]. The proposed standardized methods resolve current individual exposure monitoring and control deficiencies to better protect human beings in 21st century worldwide, independent of sources of radiation and country of origin.

### References

- [1]. Sohrabi, M., “A Universal Radiation Protection System (URPS) based on Individual Standardized Integrated Doses. *Radiat. Prot. Dosimetry*.64(4), pp.459-66 (2015).
- [2]. Sohrabi, M., “Universal Radiation Protection System (URPS); A Natural Global Standardized Trend for Human Exposure Control in 21st Century”, *Radiat. Prot. Dosimetry*. May (2019), doi:10.1093/rpd/ncz097.
- [3]. Sohrabi, M., “The URPS for Universal Radiation Protection Standardization”, 14th International Congress of IRPA, Cape Town, South Africa, 9-13 May (2016) (Invited Talk).
- [4]. Sohrabi, M., “On Dose Reconstruction for the Million Worker Study: Status and Guidelines”, *Health Phys.* 109, 327-329 (2015).
- [5]. Sohrabi, M., Editorial, “A Standardized Individual Dose System for Epidemiology of Public and Workers by Universal Radiation Protection System Hypothesis”. *J. Epidemiol. Public Health Rev.* 1(3) (2016).
- [6]. Sohrabi, M., Editorial, “Dose Fractionation Concept in Radiation Protection to Standardize Risk/Dose Limits and Epidemiology Studies”, *J. Epidemiol. Public Health Rev.* 2(4) (2017).
- [7]. Sohrabi, M., Editorial, “Conservation of “Cause-effect” by using Integrated Individual Radiation Doses towards Standardization of Epidemiology Health Risk Estimates of Nuclear/Radiation Workers”, *J. Nucl. Ene. Sci. Power Generat. Technol.* 6:2 (2017).
- [8]. Sohrabi, M., “Bridging the LNT and Hormesis Radiation Protection Models”, *Nuclear News*, pp.37-42, June (2018).

[9]. Sohrabi, M. Eyes Should be Washed for Global Change in Radiation Protection of 21st Century. Health Physics 120 (4), 455-458) (2021).

[10]. International Commission on Radiological Protection. The 2007 recommendations of the international commission on radiological protection. Publication 103, Ann. ICRP 37(2-4), Elsevier (2007).

**Auteur principal:** Prof. SOHRABI, Mehdi (Faculty of Energy Engineering and Physics Amirkabir University of Technology)

**Orateur:** Prof. SOHRABI, Mehdi (Faculty of Energy Engineering and Physics Amirkabir University of Technology)

**Classification de Session:** Novel Radiation Protection Philosophy and Concepts,