IAEA
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Atoms for Peace and Development

Free Webinars on Occupational Radiation Protection

📅 **22 July 2020** ⏰ **16:00 CEST**

22 July 2020

Artificial intelligence & virtual reality: How to enhance radiation protection of workers and the future of workplace safety

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Welcome to the 10th ORP webinar

WEBINAR ON

Artificial intelligence & Virtual reality: How to enhance radiation protection of workers and the future of workplace safety

22 July 2020 **16:00- 17:30 CEST**

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22 July 2020

Artificial intelligence & virtual reality: How to enhance radiation protection of workers and the future of workplace safety

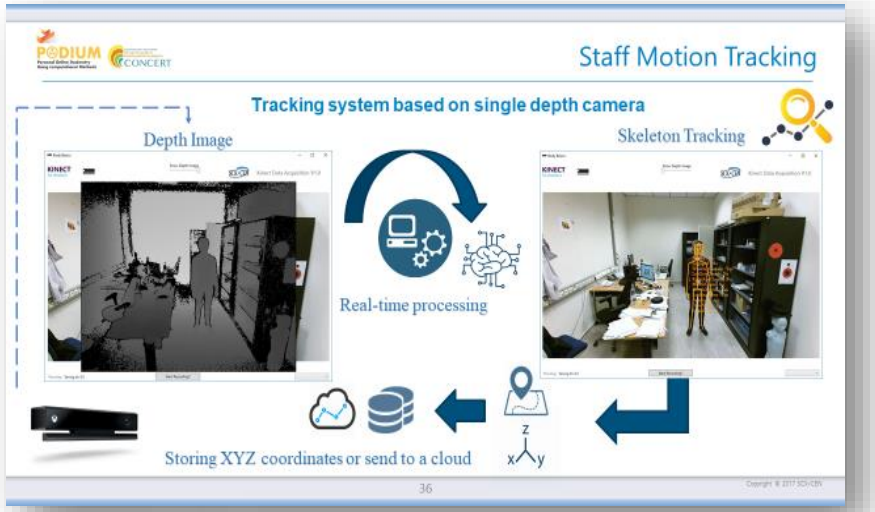
10th ORP webinar

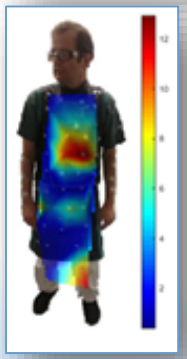
Moderator: H. Burçin Okyar

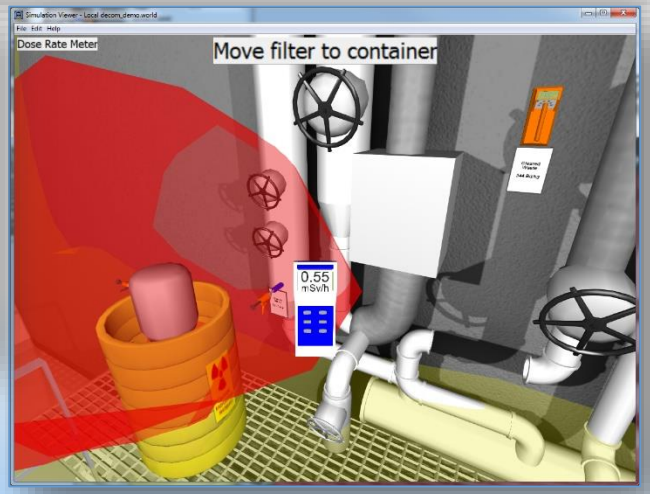
Occupational Radiation Protection Unit
Section of Radiation Safety and Monitoring
Division of Radiation, Transport and Waste Safety
Department of Nuclear Safety and Security

WEBINAR on Artificial intelligence & Virtual reality:

How to enhance RP of workers & the future of workplace safety







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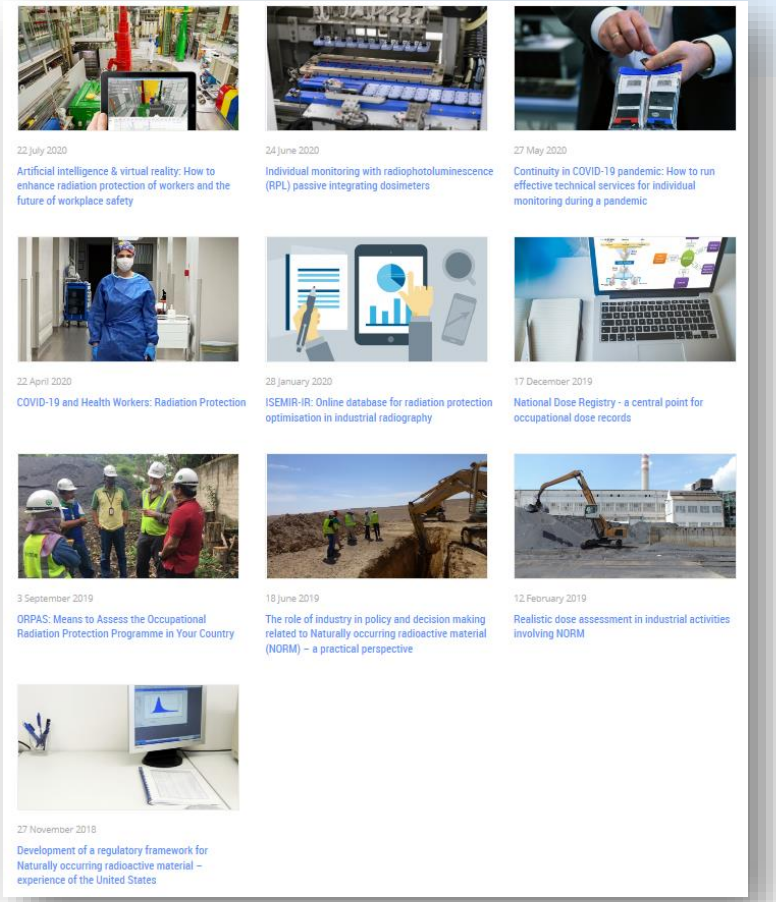

https://www.iaea.org/topics/radiation-safety/webinars

Learning objectives

- Innovative new tools and techniques for utilization in workplaces and how it rolls into the RP of workers and work planning.
- Online dosimetry application based on the use of modern technology such as personal tracking systems.
- State- of- the-art applications in visualization of work environments to provide planning options to reduce the worker’s dose and evaluation of the impact of working in different configurations and scenarios with associated training.

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Today's Speakers

Mercè Ginjaume

István Szőke

Yury Verzilov

ORPNET: https://nucleus.iaea.org/sites/orpnet/home/SitePages/Home.aspx

Welcome note from
Jizeng Ma
Head of Occupational Radiation Protection Unit, IAEA

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Webinar on "*AI & VR: How to enhance RP of workers and the future of workplace safety*"

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Today's Speaker: Mercè Ginjaume

Head of the Calibration and Dosimetry Laboratory of UPC, Vice-chair of the International Radiation Protection Association (IRPA) TG on the impact of the eye lens dose limits, Chair of the Dosimetry Group of the Spanish Society of Radiation Protection and Voting member of EURADOS

President of the Spanish Society of Radiological Protection from 2015 to 2017 and Director of the Institute of Energy Techniques at UPC from 2005 to 2011

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Today's Speaker: István Szőke

Manager at IFE
Academic and professional background and PhD are related to research and development into application of 3D radiological simulation based digital solutions for protection of humans and the environment from radiological hazards

Working at the Institute for Energy Technology in Norway, which is a non-profit research organisation leading the one of the longest nuclear programmes of the OECD NEA Halden Reactor Project

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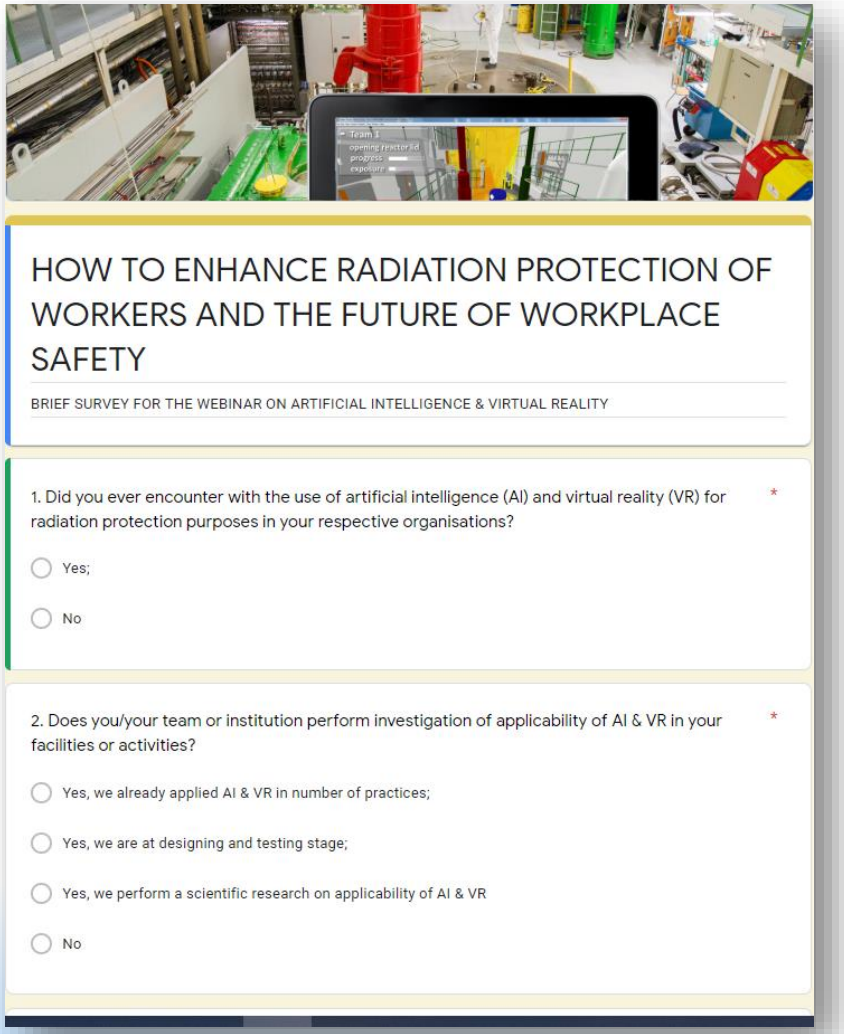
Today's Speaker: Yury Verzilov

Senior scientist at Kinectrics
PhD in Experimental Nuclear Physics and performed research projects related to the cold neutron source, fission and fusion reactors

Responsible for projects related to the Source Term Monitoring at CANDU stations in Canada and Romania

Extensive experience in a variety of scientific and engineering projects in the fields of nuclear engineering and physics

Preliminary assessment of the brief survey results



HOW TO ENHANCE RADIATION PROTECTION OF WORKERS AND THE FUTURE OF WORKPLACE SAFETY

BRIEF SURVEY FOR THE WEBINAR ON ARTIFICIAL INTELLIGENCE & VIRTUAL REALITY

1. Did you ever encounter with the use of artificial intelligence (AI) and virtual reality (VR) for radiation protection purposes in your respective organisations? *

- Yes;
- No

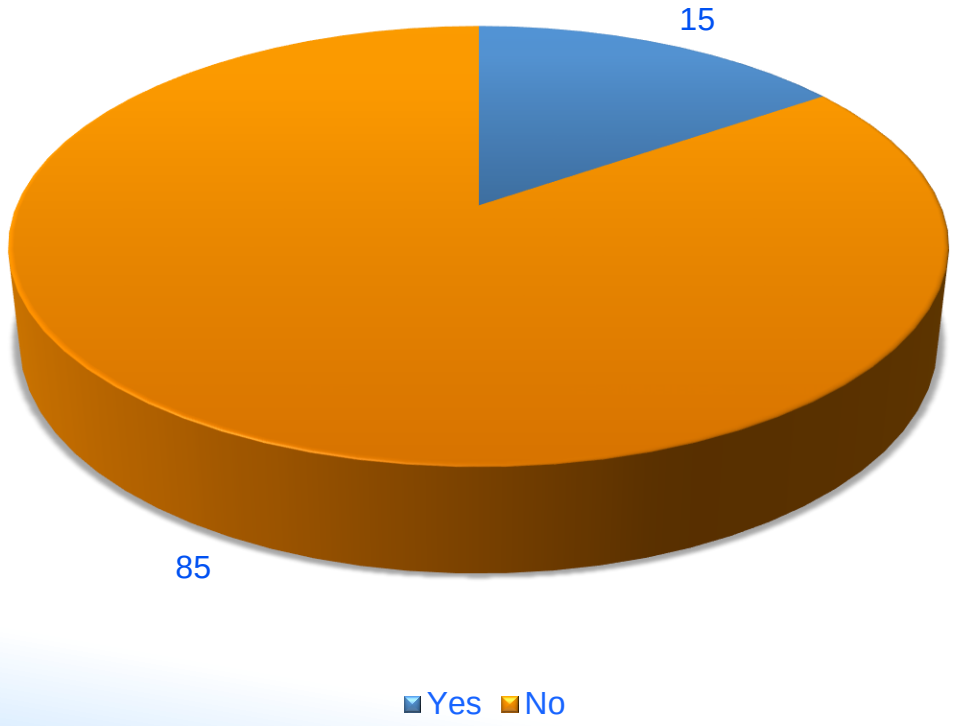
2. Does you/your team or institution perform investigation of applicability of AI & VR in your facilities or activities? *

- Yes, we already applied AI & VR in number of practices;
- Yes, we are at designing and testing stage;
- Yes, we perform a scientific research on applicability of AI & VR
- No

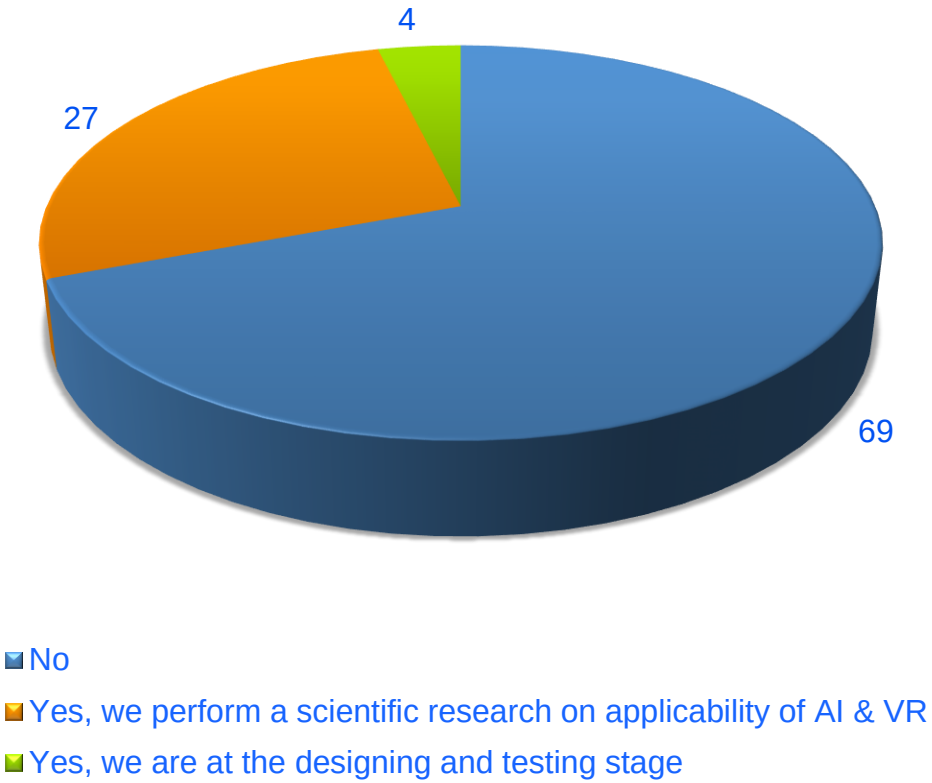
- 10 questions to understand the participant's understanding /practices on the use of AI&VR for workplace safety/ RP of workers

Roman Abutalipov
Associate Radiation Safety Officer

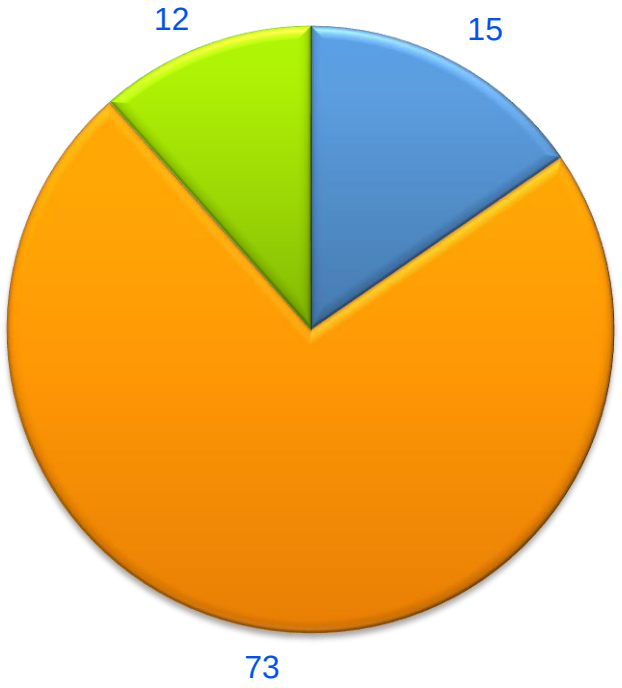
1. Did you ever encounter with the use of artificial intelligence (AI) and virtual reality (VR) for radiation protection purposes in your respective organisations?



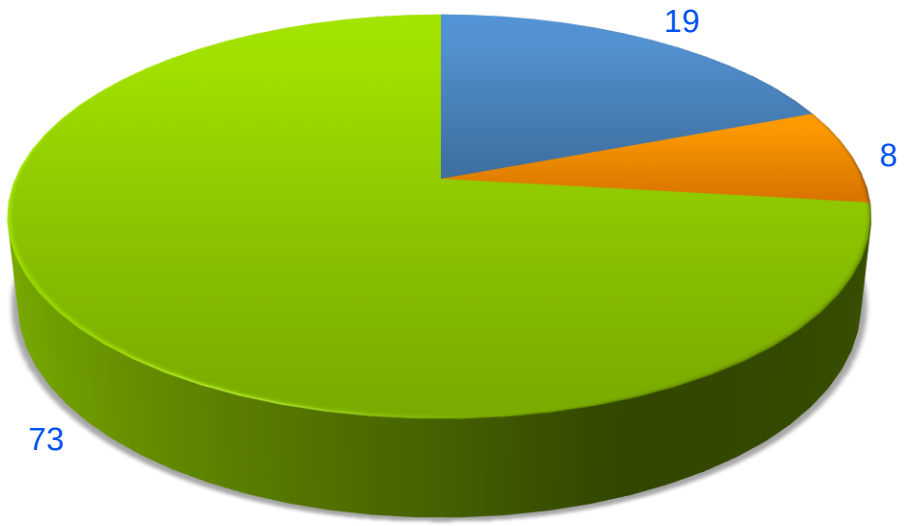
2. Does you/your team or institution perform investigation of applicability of AI & VR in your facilities or activities?



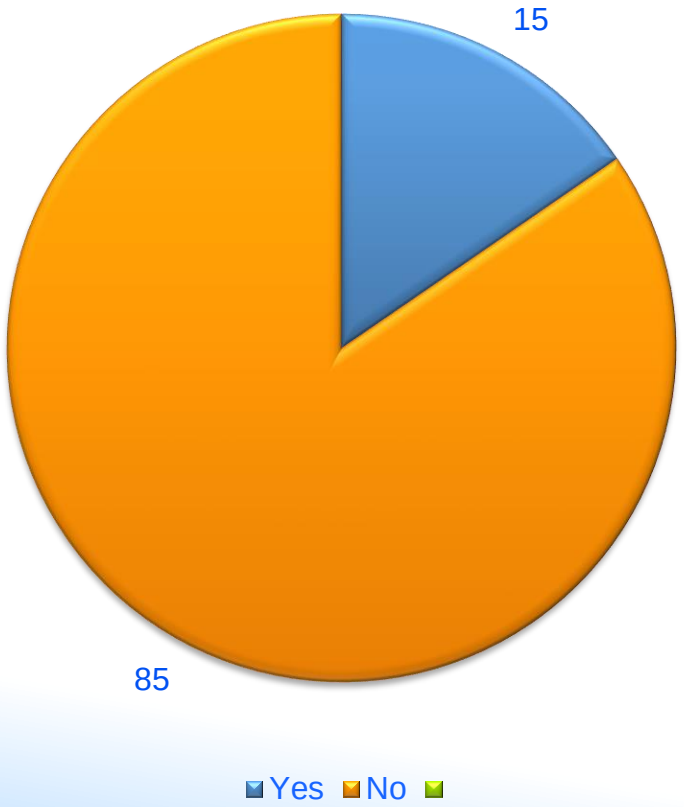
3. Did you/your company hire/plan to hire external consultants and/or IT company for design, maintenance and operation of AI & VR in radiation protection?



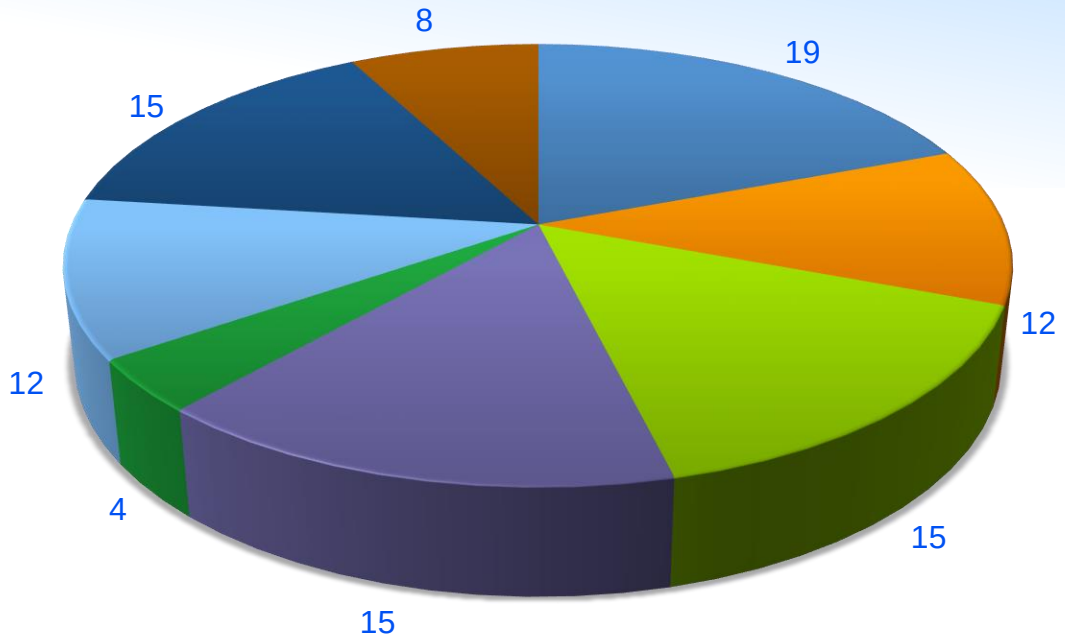
4. Does the AI & VR application you work on/with require preliminary dose assessment, new policies application or additional certification?



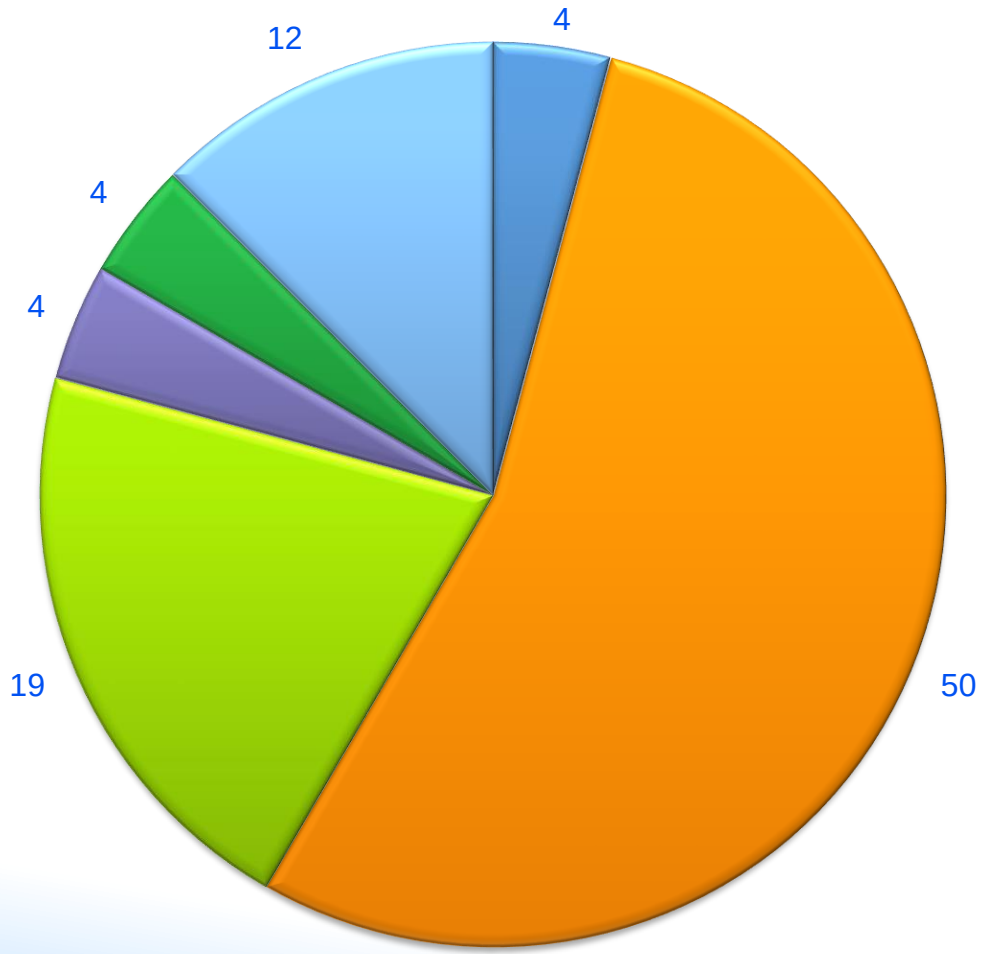
5. Do you or your company participate in international projects focused on application of AI & VR in the field of radiation protection?



6. In what domain do you work?



7. What of other technologies are applicable in radiation protection from your point of view?



8. What kind of tool would you like to have in your daily practice?

- [x] Tool for education and training;
- [x] Tool for planning and evaluation of radiation protection;
- [ ] Tool for complex simulation and modelling;
- [ ] Tool for radiotherapy and medical data analysis;
- [ ] All of them;

12 %

- [ ] Tool for education and training;
- [x] Tool for planning and evaluation of radiation protection;
- [x] Tool for complex simulation and modelling;
- [ ] Tool for radiotherapy and medical data analysis;
- [ ] All of them;

12 %

- [ ] Tool for education and training;
- [ ] Tool for planning and evaluation of radiation protection;
- [ ] Tool for complex simulation and modelling;
- [ ] Tool for radiotherapy and medical data analysis;
- [x] All of them;

35 %

9. For what kind of data would you like to apply AI & VR?

- [ ] Radiation exposure and dose;
- [ ] Simulation;
- [ ] Job planning;
- [ ] Training;
- [ ] Images;
- [ ] Field characteristics;
- [ ] Shielding characteristics;
- [ ] Risk estimation and assessment;
- [ ] Radiation biology data;
- [x] All of them;

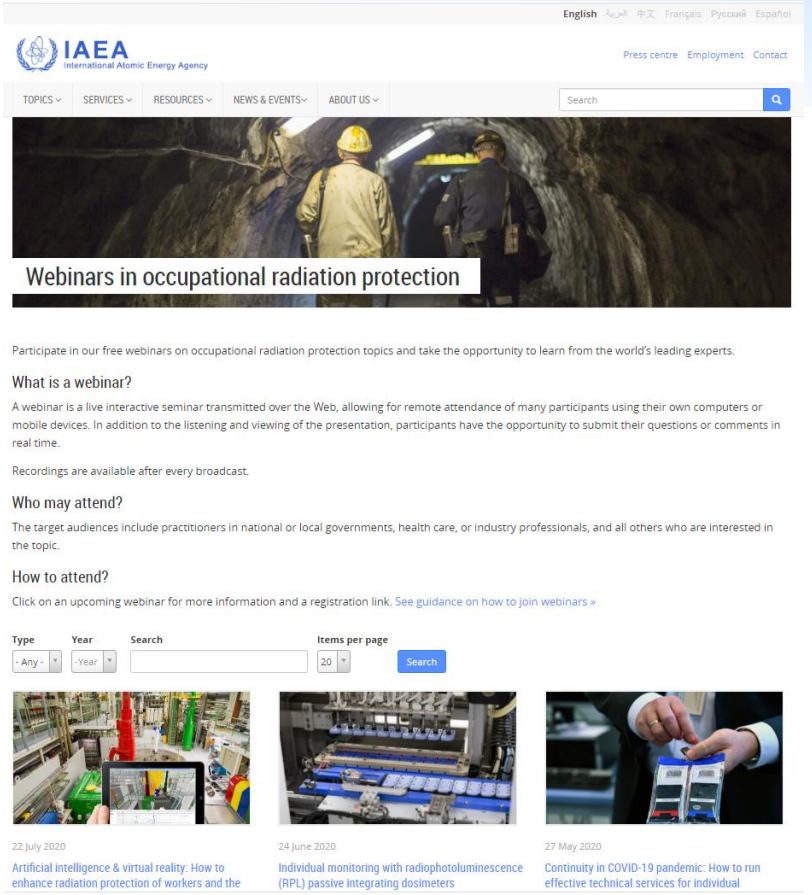
27 %

- [x] Radiation exposure and dose;
- [x] Simulation;
- [ ] Job planning;
- [x] Training;
- [ ] Images;
- [ ] Field characteristics;
- [x] Shielding characteristics;
- [x] Risk estimation and assessment;
- [ ] Radiation biology data;
- [ ] All of them;

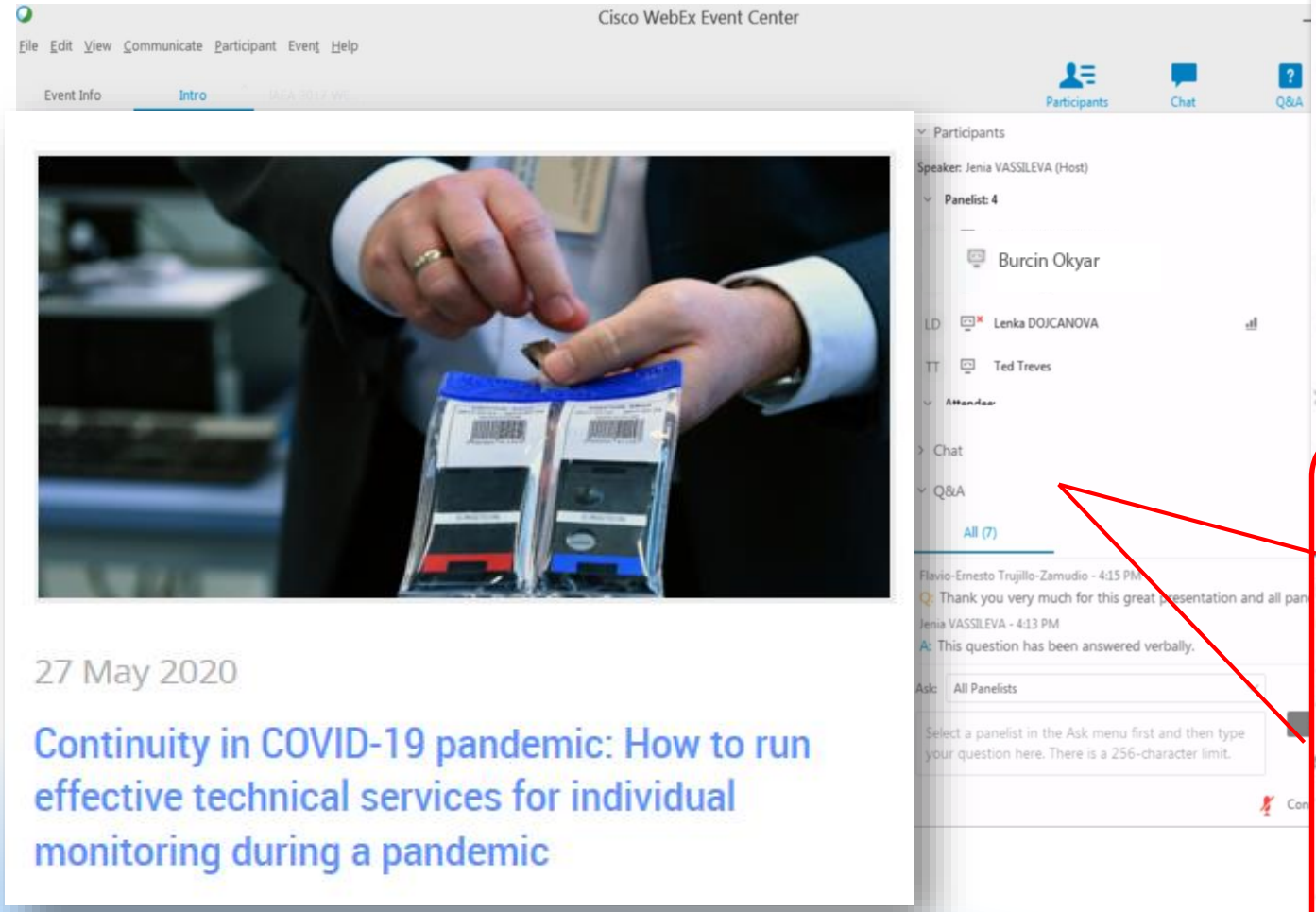
8 %

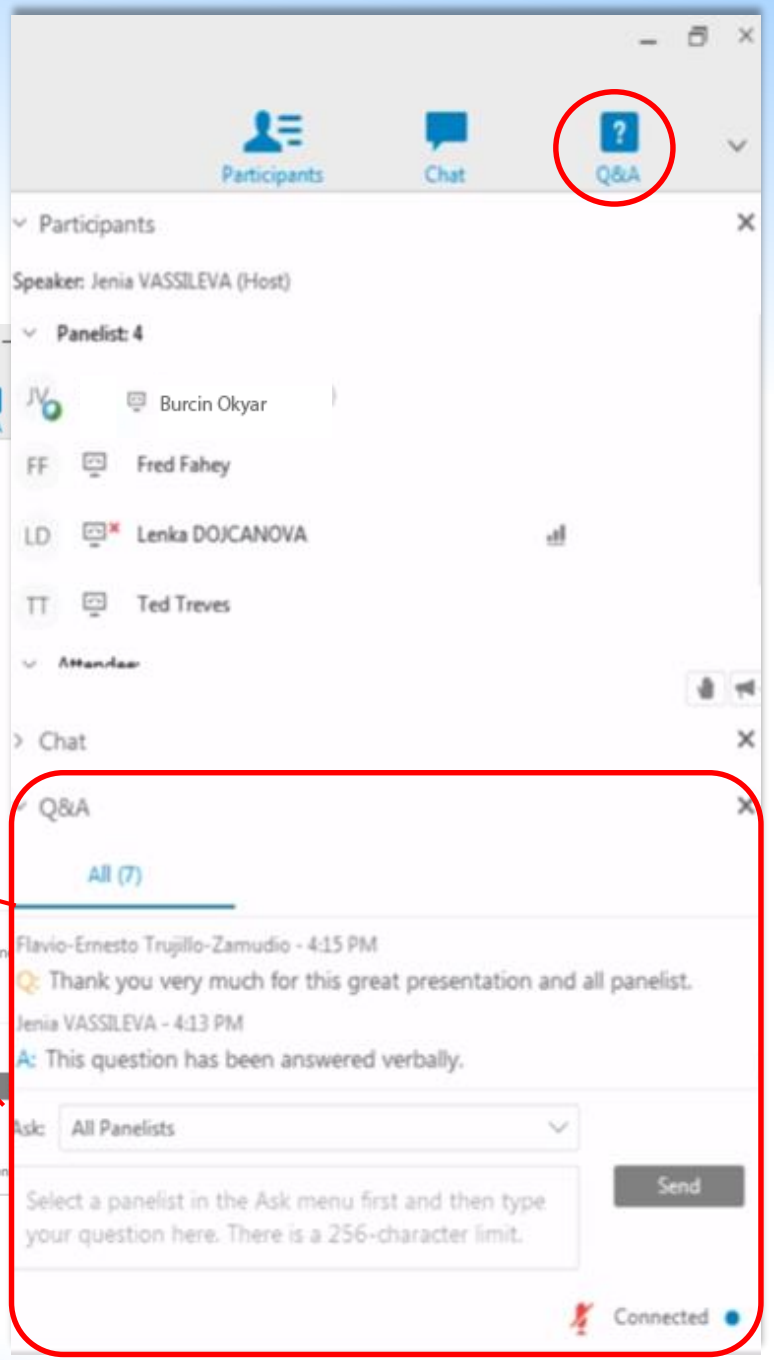
10. Please give us your suggestions for topics for future webinars on occupational radiation protection

- Dose optimization during design of nuclear facilities (to comply with regulatory requirements)
- Development of VR&AR applications for simulation/job planning in regards of dose calculations for workers
- Monte Carlo simulations in low doses and applications in internal dose distribution and radioisotopes in nuclear medicine.
- Use of data mining and AI to create algorithms for predicting radiological accidents
- Low dose dosimetry
- Overview of the international standards for ORP

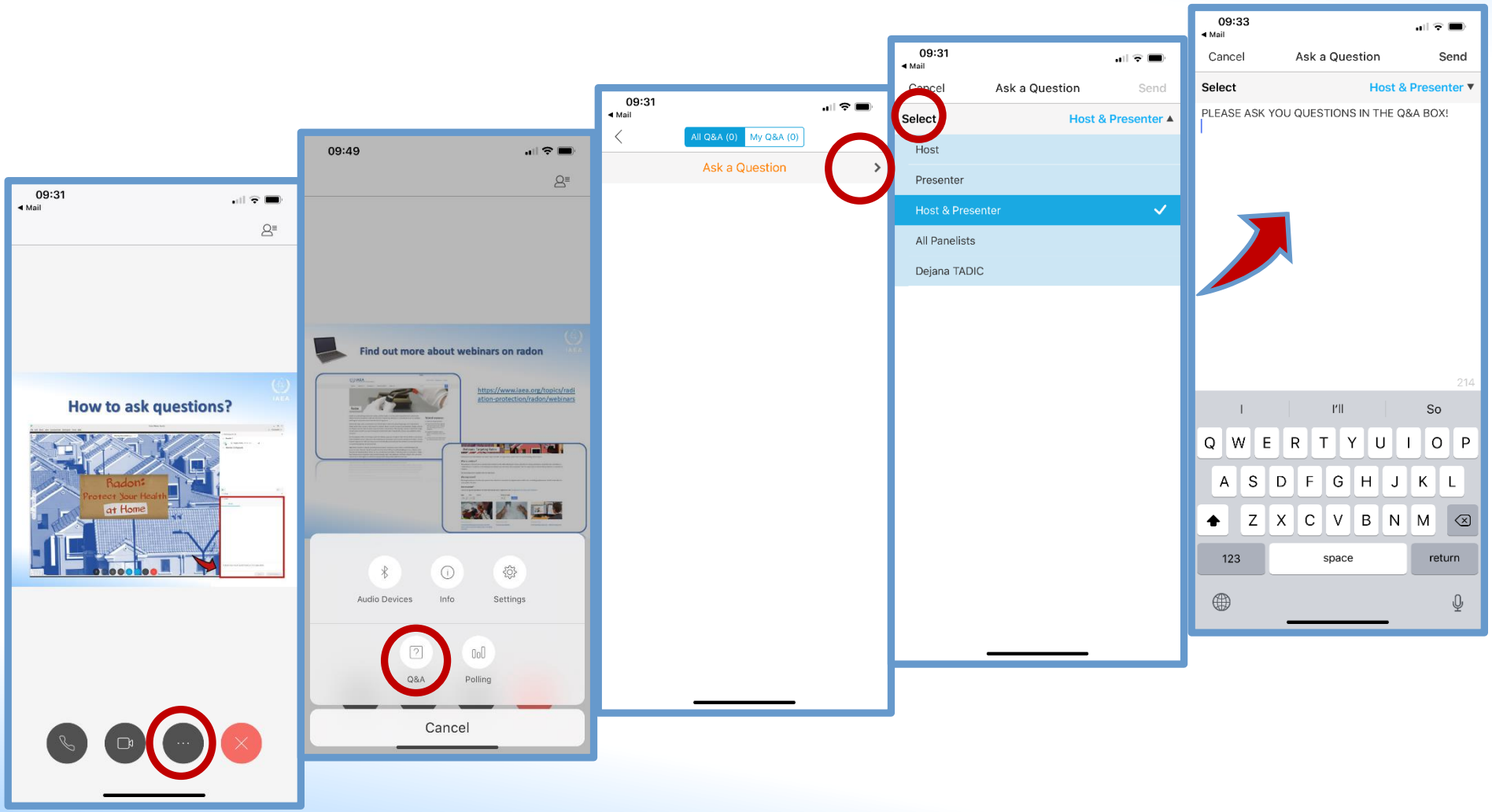


How to ask questions





How to ask questions?



Book your seat (Upcoming webinars)

Topics to be addressed;

- Internal dosimetry – State of the art practices (In-vivo & in-vitro)
- Individual monitoring with OSL passive dosimeters
- Establishment and Operation of Management Systems for TSPs
- Personal Protective Equipment- Lessons learned from the shortage during the COVID-19 pandemic
- Recognition as a third party and laboratory accreditation – demonstration of fulfilment

Watch the announcements @
ORP webinars web-page: https://www.iaea.org/topics/radiation-safety/webinars

Occupational Radiation Protection NETworks

Register for ORPNET Newsletter

Thank you for your participation

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We invite proposal submissions for consideration in our ORP webinar series
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