Personal Details

Nedime İrem Elek

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Degrees

Master Degree: Ege University, Graduate School of Natural and Applied Sciences, Nuclear Physics, 2019-2022, Graduate School of Natural and Applied Sciences, Physics, Ege University, Izmir, Bornova, Turkey.

  Master's thesis topic: Evaluation Of Radon-Induced Radiation Risk in Indoor Environments.

Bachelor Degree: Dokuz Eylul University, Faculty of Science, Physics. 2014- 2019, Dokuz Eylul University Faculty of Science Physics Department Tinaztepe Campus 35390, Izmir Turkey.

  Bachelor's graduation project: Nuclear Reactions and Fusion

Previous Work Experience

Research Assistant Institute of Nuclear Science, Ege University (2022)

- Gathering samples from various environmental sources like soil, water, air, vegetation, and even food products for radioactivity analysis.

- Operating and maintaining specialized equipment such as gamma and alpha spectrometers to measure radioactivity levels.

- Preparing samples for analysis by following specific protocols including drying, grinding, and chemical treatment to extract radioisotopes.

- Conducting experiments and tests to quantify and identify different radioactive isotopes present in samples.

- Analyzing and interpreting experimental data obtained from measurements and experiments. This includes statistical analysis and the use of software tools for data processing.

- Assisting in maintaining a clean, organized, and safe laboratory environment. This includes equipment calibration, inventory management, and adherence to safety protocols.

- Collaborating with other researchers, scientists, or teams within the organization to share findings and contribute to broader research goals.

- Staying updated with current literature, methodologies, and advancements in the field of environmental radioactivity research.

Academic Research:

The Use of ^{7}Be, ^{137}Cs and ^{210}Pb in the Evaluation of the Contemporary and Medium Term Sediment Deposition on the Meric River Floodplains (2022)

- Using natural and atmospheric origin a strong audience agent ^{7}Be radioisotope in the short-term and both of ^{137}Cs and ^{210}Pb in the medium term in Meric River to assess the deposition and the distribution of sediment from flooding in the area. Sediment deposition has been determined on the Meriç River Floodplains by means of ^{7}Be, ^{137}Cs and ^{210}Pb.
- The results by means of nuclear analytical techniques provide a realistic picture of the medium term sediment deposition on the Meric River Floodplains and a reference database for the future studies.

Potantial Ecological Risk Assesments in the Izmir Bay-Gediz Delta derived by ^{210}Pb and ^{137}Cs sediment dating (Present).

- In the literature survey on "Gediz Delta, Homa Lagoon, Izmir Bird's Paradise, Izmir Bay", there is no study in which persistent organic pollutants and heavy metals related to Izmir Bay – Gediz Delta area are evaluated by sediment dating, and current studies on pollutants are only based on surface sediments.
- In this regard, the proposed project is aimed to examine the historical records of persistent organic pollutants (organochlorine pesticides and 16PAH compounds) and heavy metals in sediments with high resolution ^{210}Pb and ^{137}Cs dating in order to assess the potential ecological risk in the Izmir Bay- Gediz Delta Area.

SKILLS:

- Laboratory Techniques: Gamma and Alpha Spectroscopy Systems, Laboratory Equipments; Grinder, Vacuum Machine, Vibratory Sieve Shakers, Pycnometer, Hydrometer.

- Data Analysis: SPSS, Excel

- Programming: Fortran 90-95, MATLAB, QGIS (Basic).

- Communication: Oral and written communication skills to collaborate with team members, researchers, and other stakeholders within and outside the field.

- Computer: Microsoft Office (Word, Excel, Powerpoint.)

- Report writing.

Other Education and Expertise:

- **International Atomic Energy Agency- International Society for Tracer and Radiation Applications (IAEA- ISTRA):** Radiotracer Method – Residence Time Distribution Technique (RTM/RTD) Report writing.

- **International Atomic Energy Agency- International Society for Tracer and Radiation Applications (IAEA-ISTRA):** Sealed Soruce Method – Column Scanning Technique (SSM/CST)

- **ODTU (Middle East Technical University) Online Education Certificate:** Microsoft Excel Pivot Table.

- **National Research Nuclear University MEPhI (Russia), Course Certificate:** Nuclear Reactor Physics Basics.

Research Output:

- **Elek, N.I., Çam, N.F., & Öztürk, B.C. (2023).** Evaluation of radon-induced radiation risk in indoor environments, CLEAN- Soil, Air, Water, 202300124 https://doi.org/10.1002/clen.202300124.

- **N.I. ELEK, N.F. ÇAM, B. CANBAZ ÖZTÜRK,** "Variation of Indoor Radon Concentration Levels with Height" Turkish Physical Society 37th International Physics Congress, Bodrum, Turkey, 01- 05 September 2021, Book of abstracts p.253.

EXTRACURRICULAR ACTIVITIES:

Volunteer, Let's Do It Turkey;

Turkey's leading non-governmental organization on environment and sustainability. It works to raise awareness of people from all over Turkey about environmental problems and to find solutions. Together with Let's Do It Turkey, I am contributing to a sustainable future.

Membership, International Society for Tracer and Radiation Applications (ISTRA).

The International Society for Tracer and Radiation Applications (ISTRA) is a professional organization dedicated to advancing the use of tracers and radiation techniques across various scientific and industrial fields. The main fields covered by the Society are: radiotracer and conventional methodologies and technologies as applied to industry and environment, as well as in radiometric and related methods for non-destructive investigations and process visualization, such as nucleonic control systems (NCS), Computed Tomography (CT), Computer Aided Radioactive Particle Tracing (CARPT), Positron Emission Tomography (PET), Particle Imaging Velocimetry (PIV), and modelling approaches including residence time distribution (RTD) and computer fluid dynamics (CFD) which either assist in the analysis of resulting data or use it for validation or parameterisation.