*Associate Professor Dr. Begy Robert-Csaba-narrative CV*

***Precise measurement of natural and anthropogenic radioactive pollutants and establishing accurate chronologies for the fast-changing climate of the last centuries***

Begy Robert-Csaba is an Associate Professor at the Faculty of Environmental Science and Engineering and the Head of the Nuclear Spectrometry Laboratory within the Environmental Radioactivity and Nuclear Dating Centre at Babeș-Bolyai University (BBU) in Cluj-Napoca, Romania. He earned his Ph.D. in physics in 2009 and later achieved his Habilitation in environmental science in 2022. Begy Robert-Csaba has been at the forefront of pioneering the applications of $^{210}$Pb dating methods for constructing lake sediment chronologies in Romania. His contributions led to the establishment of the Nuclear Spectrometry Laboratory at his home institution, encompassing gamma, alpha, and beta spectrometric techniques. Furthermore, the associated research activities focus on the development of the radiochemical separation protocols required for the application of spectrometric methods in environmental monitoring and dose assessment studies. The aforementioned endeavors serve as the pillars upon which Begy Robert-Csaba's research career has been built.

Begy Robert-Csaba earned his PhD in 2009 by submitting his thesis entitled "*Environmental Studies using $^{210}$Pb radioisotope*". The overriding objective of the thesis was to implement the $^{210}$Pb dating method at Babes-Bolyai University in Cluj-Napoca and apply this technique to lakes of great importance in Romania. At the same time, he was awarded his first research grant (grant for PhD students in Romania – **CNCS/UEFISCDI- TD-397**). During his PhD studies, Begy Robert-Csaba investigated a topic that is of current and future importance as the study of the past, by unraveling earlier natural processes, has the potential of predicting future environmental trends. After graduating from his PhD program, Begy Robert-Csaba's scientific activity was focused on the research of radon in residential buildings, a topic with profound social implications for public health safety. During this period, he developed a system for monitoring and controlling residential radon concentrations, which led to the grant of the **129264/G01T** patent "*Automated system for monitoring and controlling residential radon concentrations*". This four-year period of research resulted in the publication of numerous scientific papers, addressing the challenges of remediation techniques for residential radon.

From 2012 to 2015, Begy Robert-Csaba was the PI of **PNI-II-RU-TE-2012-3-0351** Research projects for stimulating young independent teams (TE) "*Radionuclides as tracers of the anthropic influence on the Danube Delta sedimentary processes*". The main purpose of the project was the study of the effects of building the hydroelectric power plants Iron Gate I and II on the sediment accumulation in the Danube Delta. The findings highlighted that from the large number of investigated lakes, only a fraction preserved the sedimentary footprints associated with the large-scale construction of the power plants. These observations on the sedimentation rates, which have increased

by four-fold in the last 34 years, made a significant contribution to shaping a new research trajectory. As a result, from 2018 to 2021, Begy Robert-Csaba was the PI of a second Research project for stimulating young independent teams (TE), **PN-III-P1-1.1-TE- 2016-0814**, "*Studies on the effects of land use change on soil erosion and high sedimentation rates using radionuclides"*. The project tackles the recent changes in sedimentation rates in important glacial and low-land lakes, aiming to identify and quantify the anthropic causes that triggered these effects. The results allowed for the disentangling of the impact of different anthropic activities on lacustrine ecosystems, further highlighting the negative consequences of intensive agriculture. The main challenge associated with isolating the anthropic component was the subtraction of the natural (climatic) baseline from the obtained data. This difficulty was addressed by the use of peatlands, which provided the climatic footprint for constructing such a reference level. Further understanding the valuable climatic records in peat bogs, amplified by their pivotal role in the global carbon cycle, Begy Robert-Csaba developed a novel research proposal, which materialized into a third Research project for young independent teams (TE) **PN-III-P1-1.1-TE2021- 0213** *"Reservoir or source of C: assessing the impact of climate change and anthropogenic influences on SE-European peatlands over the last 150 years"*, ongoing since 2021, of which Begy Robert-Csaba is PI. The project aims to determine the mechanisms and factors controlling the carbon dynamics within peat ecosystems, and the extent to which peat degradation and the subsequent carbon loss may contribute to greenhouse gas emissions and climate change intensification. The project covers an extended area, encompassing seven European countries, that allows for a broad latitudinal comparison of the ecosystem productivity, as well as its potential in reconstructing micro- and macro-climatic variations. The results identified increased apparent carbon storage capacities of peatlands, while the net balance remains to be established.

Alongside the fundamental research conducted by Begy Robert-Csaba, he strongly emphasized applicative research, leading numerous radiological and dose assessments in different environments. Included among these are: multiple analyses of the radioactive contamination at a regional scale that were performed following the Fukushima and Chernobyl accidents; radionuclide transfer from mine tailings into stream river sediments; as well as dose assessment studies of over 100 spring and geothermal water sources, with extended applicabilities in the public health safety sector.

During his 15-year teaching experience at the Faculty of Environmental Science and Engineering, Babes-Bolyai University, Cluj-Napoca, Begy Robert-Csaba has coordinated over 30 BSc and MSc thesis, as well as 3 Special Scholarship for Scientific Activity awarded by Babeș-Bolyai University. The courses taught by Begy Robert-Csaba incorporated multiple elements of his research, to facilitate a seamless knowledge transfer process. This approach aims to help students not only become familiar with but also actively embrace science, fostering a dynamic and practical learning experience.

***Annex- Career timeline and listed achievements***

## Personal Information

Family name, First name: **Begy Robert-Csaba**

Date of birth: 10 June 1980

**Researcher unique identifier(s)** Scopus ID: 26647449700,

Google Scholar https://scholar.google.com/citations?user=mSeyWZgAAAAJ&hl=en

INDEX h (Hirsch) (Scopus) = 14 – excluding auto citations

INDEX h (Hirsch) (Google Scholar) = 16/ 12 (since 2019)

## Education

**2023: Habilitation in Environmental Science** Babeş-Bolyai University (BBU), Cluj-Napoca, Romania.

**2005 - 2009: PhD** student in Physics, Nuclear Physics at the Faculty of Environmental Science and Engineering, Babeş-Bolyai University, under the supervision of Prof. PhD. Constantin Cosma. Title: "*Environmental studies using the Pb-210 radionuclide*"

**2005-2006**: Doctoral school "*Evolution of terrestrial systems and the environment*" - Faculty of Environmental Science, Babes-Bolyai University, Cluj-Napoca

**2004-2005: MSc** student "*Atomic and nuclear methods in the study of the environment*" – Faculty of Environmental Science, Babes-Bolyai University, Cluj-Napoca. The title of the MSc thesis "*Measurement of Ra-226 in commercially available mineral waters in Romania*", scientific coordinator Prof. PhD. Constantin Cosma, Faculty of Environmental Science, Babes-Bolyai University Cluj-Napoca, Romania and Prof. PhD. Somlai Janos and PhD. Tibor Kovacs, Institute of Radiochemistry and Radioecology, Pannonia University of Veszprem, Hungary.

**1999-2004: Bachelor's** degree in Physics, Faculty of Physics, Babeş-Bolyai University, Cluj-Napoca. Bachelor thesis: "*Construction and testing of an experimental device for measuring Radon*"

## Current positions

**2021 to present -** Associate Professor, Department of Environmental Science, Faculty of Environmental Science and Engineering, Babes-Bolyai University, Cluj-Napoca, Romania

**2017 to present -** Grade I Scientific Researcher, Interdisciplinary Research Institute in Bio-Nano-Sciences, Babes-Bolyai University, Cluj-Napoca, Romania

**Previous positions**:

**2009 -2021 - Lecturer** Department of Environmental Science**,** Faculty of Environmental Science and Engineering**,** Babes-Bolyai University, Cluj-Napoca, Romania

**Supervision of graduate students and postdoctoral fellows**

2009 – present: Over 40 master's and bachelor students enrolled at Babeș-Bolyai University, Cluj-Napoca, Romania; Three Special Scholarship for Scientific Activity (with a duration of one year each)

**Teaching activities**

Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. Courses and practical exercises in: Basics of environmental physics, Environmental Radioactivity, Environmental Informatics, Unconventional Energies, Biophysics, Atmospheric Physics, Meteorology and Climatology, Radioecology

**Institutional responsibilities**

Head of Nuclear Spectrometry laboratory in the Center for Environmental Radioactivity and Nuclear Dating within the Interdisciplinary Research Institute in Bio-Nano-Sciences, of Babes-Bolyai University, Cluj-Napoca

**Reviewing activities**

Review board of the following journals: Geochronometria **(IF=1.243),** J. Environ. Radioact **(IF=2.047),** Appl. Radiat. Isot. (**IF=1.136),** Radioanal. Nucl. Chem. **(IF=0.983),** Sci. Total Environ**. (IF=3.976),** Estuarine, Coastal and Shelf Science **(IF=2.335),** Environ. Scie. and Pollut. Res. (**IF=2.76**), Quat. Geochronol. (**IF=3.142**), Scientific Reports **(IF=3.998)**

**Evaluator for PhD thesis at foreign universities:** University of Pannonia, Veszprem, Hungary, 2023, 2022 and 2021

**Memberships of scientific societies**

Member of the Hungarian Radiochemistry Society (Hungarian Chemical Society); Member of the scientific committee of RAD conferences (4,5,6,7,8,9,10); Member of the scientific committee of the VIII conference. TREICEP

**Invited talks**

VIII. Terrestrial Radioisotopes in Environment International Conference on Environmental Protection, 4-7 October **2022** Vonyarcvashegy, Hungary, "*210Pb dating as a tool for the investigation of environmental processes: From anthropic effects to climate changes*"

**Scientific research grants (selection)**

**2024 – Member** of European Research Council (ERC) Consolidator Grant 101043356, HORIZON EUROPE, „PROGRESS- *Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods*", 2023-2027

**2022 - PI** of CNFIS/UEFISCDI human resources project TE grant: **PN-III-P1-1.1-TE2021- 0213,** with the title "*Reservoir or source of C: assessing the impact of climate change and anthropogenic influences on SE-European peatlands over the last 150 years*"

**2020 – Member** of „INTERTRAP- *Integrated dating approach for terrestrial records of past climate using trapped charge methods*", 2016-2021, European Research Council (ERC) Starting Grant 678106, HORIZON 2020

**2018 - PI** of CNFIS/UEFISCDI human resources project TE grant: **PN-III-P1-1.1-TE- 2016-0814,** with the title "*Studies on the effects of land use change on soil erosion and high sedimentation rates using radionuclides"*

**2012** – **PI** of CNFIS/UEFISCDI human resources project grant **TE: PNI-II-RU-TE-2012-3-0351**, with the title "*Radionuclides as tracers of the anthropic influence on the Danube Delta sedimentary processes*"

**List of Publications**

1. **Begy, RC**., Savin, CF., Korponai, J. et al., 2024 *Investigation of the last two centuries sedimentation dynamics in high-altitude lakes of Southern Carpathians, Romania*. ***Sci Rep*** **14**, 1391 https://doi.org/10.1038/s41598-024-51812-2
2. Kelemen, S., Savin, CF., Timar-Gabor, A. **Begy, R-C.**, 2023 *A comparative study on digestion methods for $^{210}$Po determinations by alpha spectrometry on peat bog samples*. **J Radioanal Nucl Chem** https://doi.org/10.1007/s10967-023-09157-z
3. **R-Cs. Begy**, C-F. Savin, A. Ruskál, 2023 Recent carbon sequestration dynamics in four temperate SE European peatlands using $^{210}$Pb dating, **Journal of Environmental Radioactivity**, Volume 264,107-208, https://doi.org/10.1016/j.jenvrad.2023.107208
4. CF Savin, FL Forray, C Tănăselia, **RC Begy** 2023, Radiological assessment of carbonated spring waters in regard to the lithological characteristics of Harghita county, Romania **The**

**European Physical Journal Special Topics**, 1-19, https://doi.org/10.1140/epjs/s11734-023-00879-5

5. **Begy R.-C**., Savin C.-F., Süle D.-K., Nuhanovic M., Giagias E., Kovács T. 2022 *Radiological investigation of natural carbonated spring waters from Eastern Carpathians, Romania*. **Journal of Radioanalytical and Nuclear Chemistry** 331 (3), pp. 1439 – 1450. https://doi.org/10.1007/s10967-022-08195-3
6. **Begy R.-C.,** Savin C.-F., Timar-Gabor A. 2022 *Correction of the effects of carbon dioxide and hydrogen sulfide on electrostatic cell monitors measurements of radon in water.* **Journal of Environmental Chemical Engineering**, 10 (1), art. no. 107040. https://doi.org/10.1016/j.jece.2021.107040
7. **Begy R-C**, Savin CF, Kelemen S, Veres D, Muntean O-L, Malos CV, et al. 2021 *Investigation of the effect of anthropogenic land use on the Pănăzii Lake (Romania) catchment area using Cs-137 and Pb-210 radionuclides*. **PLoS ONE** 16(6): e0251603. https://doi.org/10.1371/journal.pone.0251603
8. **Begy, R.-C**., Kelemen, S., Simon, H., Tănăselia, C. 2018 *The history of the sedimentation processes and heavy metal pollution in the Central Danube Delta (Romania)***.** **Geochronometria** 45(1), pp. 97-106. https://doi.org/10.1515/geochr-2015-0090
9. **Begy, R.-C**., Simon, H., Kelemen, S., Preoteasa, L. 2018 *Investigation of sedimentation rates and sediment dynamics in Danube Delta lake system (Romania) by 210Pb dating method.* **Journal of Environmental Radioactivity** 192, pp. 95-104. https://doi.org/10.1016/j.jenvrad.2018.06.010
10. **Begy, R.C**., Simon, H., Vasilache, D., Kelemen, S., Cosma, C. 2017 *$^{137}$Cs contamination over Transylvania region (Romania) after Chernobyl Nuclear Power Plant Accident.* **Science of the Total Environment** 599-600, pp. 627-636 https://doi.org/10.1016/j.scitotenv.2017.05.019
11. **Begy, R.C.,** Kovacs, T., Veres, D., Simon, H., 2016. *Atmospheric flux, transport and mass balance of $^{210}$Pb and $^{137}$Cs radiotracers in different regions of Romania*. **Appl. Radiat. Isot.** 111, 31-39. https://doi.org/10.1016/j.apradiso.2016.02.008
12. **Begy, R.-C**., Preoteasa, L., Timar-Gabor, A., Mihaiescu, R., Tanaselia, C., Kelemen, S., Simon, H., 2016. *Sediment dynamics and heavy metal pollution history of the Cruhlig Lake (Danube Delta, Romania)*. **J. Environ. Radioact** 153, 167-175. https://doi.org/10.1016/j.jenvrad.2015.12.020
13. **Begy, R.C**., Dumitru, O.A., Simon, H., Steopoaie, I., 2015. *An improved procedure for the determination of $^{210}$Po by alpha spectrometry in sediments samples from Danube Delta.* **J. Radioanal. Nucl. Chem.** 303 (3), 2553-2557. https://doi.org/10.1007/s10967-014-3703-z

14. **Begy, R.-C.,** Simon, H., Kelemen, S., Reizer, E., Preoteasa, L., 2015. *Determination of sedimentation rates of a northern Danube Delta lake by $^{210}$Pb method*. **Carpath. J. Earth Environ. Sci.** 10 (4), 191-194
15. **Begy, R.-C**., Simon, H., Reizer, E., 2015. *Efficiency testing of Red Lake protection dam on Rosu stream by $^{210}$Pb method*. **J. Radioanal. Nucl. Chem.**303 (3), 2539-2545. https://doi.org/10.1007/s10967-014-3684-y
16. **Begy, R.C**., Timar-Gabor, A., Somlai, J., Cosma, C., 2011. *A sedimentation study of St. Ana Lake (Romania) applying the $^{210}$Pb and $^{137}$Cs dating methods*. **Geochronometria** 38 (2), 93-100. https://doi.org/10.2478/s13386-011-0017-6
17. **R. Begy**, C. Cosma, Z. Horvath, 2009. *Sediment accumulation rate in the "Red Lake" (ROMANIA) determined by Pb-210 and Cs-137 radioisotopes* **Rom. J. Phys.** 54, 9-10 https://rjp.nipne.ro/2009_54_9-10/0943_0950.pdf
18. **Begy R.,** Cosma C., Timar A., 2009**.** *Recent changes in Red Lake (Romania) sedimentation rate determined from depth profiles of $^{210}$Pb and $^{137}$Cs radioisotopes.* ***Journal of Environmental Radioactivity****, nr. 100,* 644-648. https://doi.org/10.1016/j.jenvrad.2009.05.005
19. **Begy R. CS**., Dreve S., Timar-Gabor A. , Rusu O.A., Cosma C., 2012. *Measurement of radium content in some spring waters from Romania*. ***Environmetal Engineering and Management Journal***, vol 11, nr 2, 1005-1009. https://doi.org/10.30638/eemj.2012.031
20. **R. Cs. Begy,** J. Somlai, T. Kovacs, O. A. Dumitru (Rusu) and C. Cosma 2013 *The activity concentration of $^{210}$Po in romanian commercial cigarettes and the radiation exposure estimation derived from their regular consumption*. Radiation Protection Dosimetry, pp. 1–5. https://doi.org/10.1093/rpd/nct121
21. **Begy R.-C**., Simon H., Kelemen S. 2015 *$^{210}$Po inhalation due to smoking: a dose estimation.* **Journal of Radioanalytical and Nuclear Chemistry** Vol 306/1.1 257-261p. https://doi.org/10.1007/s10967-015-4073-x
22. **Begy R.C**., Cosma C., Timar A**.,** Fulea D., 2009**.** *The Determination of Absolute Intensity of $^{234m}$Pa's 1001 keV Gamma Emission Using Monte Carlo Simulation*. **Journal of Radiation Research**, *nr. 50,*277-279. https://doi.org/10.1269/jrr.08062
23. **R.Cs. Begy**, H. Simon, C. Cosma, 2013 *Radiological Assessment of Stream Sediments between Băiţa-Plai and Beiuş*, Romanian Journal of Physics, Vol. 58, Supplement, P. S22–S28, Bucharest. https://rjp.nipne.ro/2013_58_Suppl/0022_0028.pdf
24. Szabó, Z., Buczkó, K., Haliuc, A., Pál, I., L. Korponai, J., **Begy, R.-C**., Veres, D., Luoto, T.P., Zsigmond, A.R., Magyari, E.K. 2020 *Ecosystem shift of a mountain lake under climate and human pressure: A move out from the safe operating space* **Science of the Total Environment**, 743, art. no. 140584. https://doi.org/10.1016/j.scitotenv.2020.140584

25. Haliuc, A., Buczkó, K., Hutchinson, S.M., Ács, É., Magyari, E.K., Korponai, J., **Begy, R.-C**., Vasilache, D., Zak, M., Veres, D. 2020. Climate and land-use as the main drivers of recent environmental change in a mid-altitude mountain lake, Romanian Carpathians PLoS ONE, 15 (10), art. no. e0239209. https://doi.org/10.1371/journal.pone.0239209
26. Florică, Ş., Burghele, B.-D., Bican-Brişan, N., **Begy, R.,** Codrea, V., Cucoş, A., Catalina, T., Dicu, T., Dobrei, G., Istrate, A., Lupulescu, A., Moldovan, M., Niţă, D., Papp, B., Pap, I., Szacsvai, K., Ţenter, A., Sferle, T., Sainz, C.2020. *The path from geology to indoor radon* **Environmental Geochemistry and Health**, 42 (9), pp. 2655-2665. https://doi.org/10.1007/s10653-019-00496-z
27. Timar-Gabor, A., Chruścińska, A., Benzid, K., Fitzsimmons, K.E., **Begy, R**., Bailey, M., 2020. *Bleaching studies on Al-hole ([AlO4/h]0) electron spin resonance (ESR) signal in sedimentary quartz* **Radiation Measurements**, 130, art. no. 106221. https://doi.org/10.1016/j.radmeas.2019.106221
*28.* Constantin, D., Veres, D., Panaiotu, C., Anechitei-Deacu, V., Groza, S.M., **Begy, R.,** Kelemen, S., Buylaert, J.-P., Hambach, U., Markoc S.B., Gerasimenko, N., Timar- Gabor, A. 2019 *Luminescence age constraints on the Pleistocene-Holocene transition recorded in loess sequences across SE Europe* **Quaternary Geochronology** *49, pp 71-77,* https://doi.org/10.1016/j.quageo.2018.07.011
*29.* Simon, H., Kelemen, S., **Begy, R.-C.** 2017 *Anthropic influences on the sedimentation rates of lakes situated in different geographic areas.* **Journal of Environmental Radioactivity** 173, pp. 11-17. https://doi.org/10.1016/j.jenvrad.2016.09.001
30. Hutchinson, S.M. , Akinyemi, F.O. , Mîndrescu, M. , **Begy, R**. , Feurdean, A. 2015 *Recent sediment accumulation rates in contrasting lakes in the Carpathians (Romania): impacts of shifts in socio-economic regime* (Article in press) **Regional Environmental Change**, 13p. https://doi.org/10.1007/s10113-015-0764-7
31. Timar-Gabor, A., Vasiliniuc, Ş., Bădărau, A.S., **Begy, R**., Cosma C., 2010. *Testing the potential of optically stimulated luminescence dating methods for dating soil covers from the forest steppe zone in Transylvanian basin.* **Carpathian Journal of Earth and Environmental Sciences**- 5(2), 137-144. https://www.cjees.ro/viewTopic.php?topicId=101
32. Dumitru, O.A. , **Begy, R.C.**, Nita, D.C., Bobos, L.D., Cosma, C. 2013 *Uranium electrodeposition for alpha spectrometric source preparation* **Journal of Radioanalytical and Nuclear Chemistry** 298(2) pp. 1335-1339. https://doi.org/10.1007/s10967-013-2584-x
33. Iurian AR, Mabit L, **Begy R**, Cosma C, 2013 *Comparative assessment of erosion and deposition rates on cultivated land in the Transylvanian Plain of Romania using 137Cs and 210Pbex,* **J Environ Radioactiv** https://doi.org/10.1016/j.jenvrad.2013.02.009

34. Constantin D., Timar-Gabor A., Veres D., **Begy R**., Cosma C., 2012. *SAR-OSL dating of quartz of different grain sizes extracted from a loess section in southern Romania embedding the Campanian Ignimbrite/Y5 tephra layer*, **Quaternary Geochronology**, 10, 81-86. https://doi.org/10.1016/j.quageo.2012.01.012

35. Cosma, C., Rusu O.A., Cosma, V., Nita, D., **Begy, R. Cs.**, Timar-Gabor, A., Astilean, A., 2012. *Protection of Alpha Spectrometry Detectors Using Thin Formvar Films and Influence on Detection Characteristics,* **IEEE Transactions on Nuclear Science** 59 (4 PART1), art. No.6153411, pp.1175-1179.https://doi.org/10.1109/TNS.2012.2184802

36. Cosma, C., Cucoş, A., Papp, B., **Begy, R**., Dicu, T., Moldovan, M., Truţă, L.A., (...), Sainz, C. 2013 *Radon and remediation measures near Băiţa-Ştei old uranium mine (Romania),* **Acta Geophysica** 61 (4) 2013 , pp. 859-875 https://doi.org/10.2478/s11600-013-0110-8

37. Cosma C., Cucoş A., Papp B., **Begy R.**, Dicu T., Moldovan M., Niţă D., Burghele B., Fulea D., Cîndea C., Dumitru O., Maloş C., Suciu L. & Sainz C. 2013 *Radon measurements and radon remediation in Băiţa-Ştei uranium mine area.***, Carpathian Journal of Earth and Environmental Science**, Volume 8,– Number 2, 191-199 https://www.cjees.ro/viewTopic.php?topicId=334

38. Papp B., Cucoş A., Moldovan M., **Begy R.**, Dicu T., Niţă D., Sainz C. & Cosma C. 2013 *International intercomparison exercise on natural radiation measurements under field conditions (IFC11).* **Romanian Journal of Physics**, Vol. 58, Supplement, P. S210–S220, Bucharest. https://rjp.nipne.ro/2013_58_Suppl/0210_0220.pdf

39. Cosma, C., Cucoş-Dinu, A., Papp, B., **Begy, R**., Sainz, C, 2013 *Soil and building material as main sources of indoor radon in Bâiţa-ştei radon prone area (Romania)* **Journal of Environmental Radioactivity** 116 pp. 174-179 https://doi.org/10.1016/j.jenvrad.2012.09.006

40. Cosma, C., Iurian, A.R., Niţâ, D.C., **Begy, R**., Cîndea, C., 2012 *Indicators of the Fukushima radioactive release in NW Romania,* **Journal of Environmental Radioactivity** 114 , pp. 94-99 https://doi.org/10.1016/j.jenvrad.2011.11.020

41. Cucoş Dinu, A, Cosma, C., Dicu, T , **Begy, R.**, Moldovan, M., Papp, B., Nită, D., Burghele, B., Sainz, C. 2012 *Thorough investigations on indoor radon in Băita radon- prone area (Romania)* **Science of the Total Environment** Volume 431, Pages 78-83. https://doi.org/10.1016/j.scitotenv.2012.05.013

42. C.Cosma, A.R.Iurian, D.C.Nita, **R. Cs. Begy**, C.Cindea 2011 "*Considerations about the presence of FUKUSHIMA radionuclides in the NW part of ROMANIA*" **Romanain Journal Of Physiscs** 56 (9-10) , pp. 1199-1207. https://rjp.nipne.ro/2011_56_9-10/RomJPhys.56.p1199.pdf

43. O. A. Rusu , S. Dreve , **R. Cs. Begy** , D. C. Nita , L. D. Bobos , C. Cosma 2011 "*Characteristics of formvar films used to prevent alpha-detector contamination*", **Journal Of Radioanalytical And Nuclear Chemistry**, Volume 290, Issue 2, Page 241 – 245. https://doi.org/10.1007/s10967-011-1256-y
44. Constantin D**., Begy R.,** Vasiliniuc S., Panaiotu C., Necula C., Codrea V., Timar- Gabor A.., 2014, *High resolution OSL dating of the Costinesti section Romania using fine and coarse quartz.* **Quaternary International**, 2014 334-335, pp. 20-29 https://doi.org/10.1016/j.quaint.2013.06.016
45. Vasiliniuc, S., Timar-Gabor, A., Vandenberghe, D.A.G., Panaiotu, C.G., **Begy, R. Cs.,** Cosma, C., 2011. *A high resolution optical dating study of the Mostiştea loess- palaeosol sequence (SE Romania) using sand-sized quartz*. **Geochronometria,** 38(1), 34-41. https://doi.org/10.2478/s13386-011-0007-8
46. Cosma C., Cucoş A., Papp B., **Begy R**., Gabor A., Bican-Brişan N., Beşuţiu L. 2014 *Radon implication in life and earth science: Băiţa-ştei area and Peceneaga-Camena fault (Romania).* **Carpathian Journal of Earth and Environmental Sciences**. Vol.9 issue 2, 15-21p https://www.cjees.ro/viewTopic.php?topicId=416
47. Dolha M., Timar-Gabor A., Dicu T., **Begy R**., Anton M., Cosma C. 2014 *A high-resolution map of gamma dose rates in Cluj County, Romania using LiF: Mg,cu,p detectors* **Radiation Protection Dosimetry** Vol:162, 14-19p https://doi.org/10.1093/rpd/ncu209
48. Cosma C., Apostu A., Georgescu D., **Begy R**. , 2009, *Evaluation of the radioactivity for different types of cements used in Romania,* **Romanian Journal of Materials,** Vol. 39, 134-139p,https://www.researchgate.net/publication/289310114_Evaluation_of_the_radioactivity_for_different_types_of_cements_used_in_Romania