

List of Publications

Scientific publications in journals

1. K. Mitev, **C. Dutsov**, P. Cassette, and B. Sabot, “Time-domain based evaluation of detection efficiency in liquid scintillation counting”, [Scientific Reports](#) **11**, 12424 (2021).
2. **C. Dutsov**, P. Cassette, B. Sabot, and K. Mitev, “Evaluation of the accidental coincidence counting rates in TDCR counting”, [Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment](#) **977**, 164292 (2020).
3. **C. Dutsov**, P. Cassette, K. Mitev, and B. Sabot, “In quest of the optimal coincidence resolving time in TDCR LSC”, [Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment](#) **987**, 164846 (2021).
4. **C. Dutsov**, K. Mitev, P. Cassette, and V. Jordanov, “Study of two different coincidence counting algorithms in TDCR measurements”, [Applied Radiation and Isotopes](#) **154**, 108895 (2019).
5. **C. Dutsov**, B. Sabot, P. Cassette, and K. Mitev, “Measurement of the half-life of excited nuclear states using liquid scintillation counting”, [Applied Radiation and Isotopes](#) **176**, 109845 (2021).
6. M. Hamel, B. Sabot, **C. Dutsov**, G. H. V. Bertrand, and K. Mitev, “Tuning the decay time of liquid scintillators”, [Journal of Luminescence](#) **235**, 118021 (2021).
7. V. Jordanov, P. Cassette, **C. Dutsov**, and K. Mitev, “Development and applications of a miniature TDCR acquisition system for in-situ radionuclide metrology”, [Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment](#) **954**, 161202 (2020).
8. K. Mitev, P. Cassette, V. Jordanov, H. R. Liu, and **C. Dutsov**, “Design and performance of a miniature TDCR counting system”, [Journal of Radioanalytical and Nuclear Chemistry](#) **314**, 583–589 (2017).
9. K. Mitev, **C. Dutsov**, S. Georgiev, L. Tsankov, and T. Boshkova, “Study of ^{222}Rn absorption and detection properties of EJ-212 and BC-400 plastic scintillators”, [IEEE Transactions on Nuclear Science](#) **64**, 1592–1598 (2017).
10. K. Mitev, **C. Dutsov**, S. Georgiev, T. Boshkova, and D. Pressyanov, “Unperturbed, high spatial resolution measurement of Radon-222 in soil-gas depth profile”, [Journal of Environmental Radioactivity](#) **196**, 253–258 (2019).
11. P. Cassette, A. Arinc, M. Capogni, P. D. Felice, **C. Dutsov**, R. Galea, E. Garcia-Torano, K. Kossert, J. Liang, K. Mitev, et al., “Results of the CCRI (II)-K2. H-3 key comparison 2018: measurement of the activity concentration of a tritiated-water source”, [Metrologia](#) **57**, 06004 (2020).

12. S. Georgiev, K. Mitev, **C. Dutsov**, T. Boshkova, and I. Dimitrova, “Partition coefficients and diffusion lengths of ^{222}Rn in some polymers at different temperatures”, [International Journal of Environmental Research and Public Health](#) **16**, 10.3390/ijerph16224523 (2019).
13. K. Mitev, P. Cassette, D. Pressyanov, S. Georgiev, **C. Dutsov**, N. Michielsen, and B. Sabot, “Methods for the experimental study of ^{220}Rn homogeneity in calibration chambers”, [Applied Radiation and Isotopes](#) **165**, 109259 (2020).
14. R. Merín, A. Tarancón, K. Mitev, S. Georgiev, **C. Dutsov**, H. Bagán, and J. F. García, “Evaluation of synthesis conditions for plastic scintillation foils used to measure α - and β -emitting radionuclides”, [Journal of Radioanalytical and Nuclear Chemistry](#) **319**, 135–145 (2019).
15. E. Pelay, A. Tarancón, K. Mitev, **C. Dutsov**, S. Georgiev, L. Tsankov, and J. F. García, “Synthesis and characterisation of scintillating microspheres made of polystyrene/polycarbonate for ^{222}Rn measurements”, [Journal of Radioanalytical and Nuclear Chemistry](#) **314**, 637–649 (2017).

Full-text publications in conference proceedings

1. **C. Dutsov**, K. Mitev, and P. Cassette, “Characterization of filters for efficiency variation in TDCR”, in [2018 IEEE nuclear science symposium and medical imaging conference proceedings \(NSS/MIC\)](#) (IEEE, 2018), pp. 1–3.
2. **C. Dutsov**, M. Mitev, L. Tsankov, and K. Mitev, “Electronic circuits for the high voltage supply and additional sensors for the polyphemus Rn-222 in soil-gas scintillation detector”, in [2017 XXVI international scientific conference electronics \(ET\)](#) (IEEE, 2017), pp. 1–4.
3. K. Mitev, V. Jordanov, M. Hamel, **C. Dutsov**, S. Georgiev, and P. Cassette, “Development of a portable scintillation spectrometer with α/β and neutron- γ pulse-shape discrimination capabilities”, in [2018 IEEE nuclear science symposium and medical imaging conference proceedings \(NSS/MIC\)](#) (IEEE, 2018), pp. 1–3.
4. K. K. Mitev, **C. C. Dutsov**, L. T. Tsankov, S. B. Georgiev, M. G. Mitev, N. M. Markov, and T. H. Todorov, “Design and field tests of scintillation spectrometer for continuous radon in soil-gas monitoring”, in [2018 IEEE nuclear science symposium and medical imaging conference proceedings \(NSS/MIC\)](#) (IEEE, 2018), pp. 1–3.
5. K. K. Mitev, L. T. Tsankov, M. G. Mitev, **C. C. Dutsov**, S. B. Georgiev, S. T. Kolev, N. M. Markov, and T. H. Todorov, “Design and tests of a detector for Rn-222 in soil-gas measurements based on Rn-222 absorbing scintillating polymers”, in [2017 IEEE nuclear science symposium and medical imaging conference \(NSS/MIC\)](#) (IEEE, 2017), pp. 1–4.
6. M. Mitev, L. Tsankov, **C. Dutsov**, and K. Mitev, “High voltage power supply for photomultipliers with extended functionality”, in [2018 IEEE XXVII international scientific conference electronics-ET](#) (IEEE, 2018), pp. 1–4.
7. K. Mitev and **C. Dutsov**, “Creation of a TDCR system for primary activity measurements in the Faculty of Physics of Sofia University St. Kliment Ohridski”, in [Annual of Sofia University St. Kliment Ohridski, Faculty of Physics, Jubilee Edition, Vol. 112, \(in Bulgarian\)](#) (2018), pp. 73–84.

Participation at conferences & Meetings

Talks at conferences

- 27 May 2019 “Study of two different coincidence counting algorithms in TDCR measurements”, **Ch. Dutsov** et al., International Conference on Radionuclide Metrology (ICRM) 2019, Salamanca, Spain
- 15 May 2017 “Measurement of the depth activity distribution of Radon-222 in soil gas by absorption in polycarbonates and liquid scintillation counting”, K. Mitev, **Ch. Dutsov**, S. Georgiev, D. Pressyanov, TEERAS 2017, Sofia, Bulgaria

Talks at meetings

- 25 Jan 2021 “Evaluation of accidental coincidences counting rates in TDCR counting”, International Committee for Radionuclide Metrology (ICRM) working group meeting
- 25 Jan 2021 “Recent experience with TDCR acquisition with CAEN desktop digitizer: Application to determination of the half-life of excited states”, International Committee for Radionuclide Metrology (ICRM) working group meeting
- 26 Jan 2021 “Influence of the coincidence resolving time on TDCR measurement results”, International Committee for Radionuclide Metrology (ICRM) working group meeting

Poster presentations

- 10 Nov 2018 **C. Dutsov**, K. Mitev, and P. Cassette, “Characterization of filters for efficiency variation in TDCR”, 2018 IEEE nuclear science symposium and medical imaging conference proceedings (NSS/MIC), Sydney, Australia
- 15 Sep 2017 **C. Dutsov**, M. Mitev, L. Tsankov, and K. Mitev, “Electronic circuits for the high voltage supply and additional sensors for the Polyphemus Rn-222 in soil-gas scintillation detector”, 2017 XXVI international scientific conference electronics (ET) IEEE, Sozopol, Bulgaria