

# Two-photon excited luminescence of colloidal quantum dots for heavy metal ions detection

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Over many years numerous research groups have been pursuing the quest for better third-order nonlinear optical (NLO) materials [1] that would be useful for the emerging applications in laser technologies, telecommunication and biophotonics [2]. Therefore, we demonstrate in the quantitative manner the ability of colloidal quantum dots (QDs) to exhibit NLO response in an expanded spectral range of wavelengths [3]. The results shed light on the potential applicability of this nanomaterial as two-photon excited luminescence based sensor for metal ions detection – including heavy metal ions [4].

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[3] Nawrot K.C., Sharma M., Cichy B., Sharma A., Delikanli S., Samoc M., Demir H.V., Nyk M. (2022) *ACS Photonics*, 9, 256-267.

[4] Siomra, A., Wawrzyńczyk D., Samoć M., Nyk M. (2024) *RSC Advances*, 14, 2439-2446.

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