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**Non-physical consequences of the Muffin-tin – type intramolecular potential** MIRON YA. AMUSIA, Ioffe Physical-Technical Institute, St.-Petersburg, Russia and Racah Institute of Physics, the Hebrew University, Jerusalem, Israel, ARKADIY BALTENKOV, Arifov Institute of Electronics, Tashkent, Uzbekistan — We demonstrate that in the frame of muffin-tin – like potential non-physical peculiarities appear in molecular photoionization cross-sections and other characteristics of this process that are a consequence of "jumps" in the potential and discontinuous of its derivative at some radius. The role of the size of this "jumps" is illustrated by choosing three values of the size of potential "jumps". The result obtained are tightly connected to the studied previously effect of the influence of non-analytical behavior of the potential acting upon a particle $U(r)$as a function of $r$on its photoionization cross-section. In reality, such potential has to be an analytic in magnitude and first derivative function of $r$. Introduction of non-analytic features in model $U(r)$leads to non-physical features in the corresponding cross-section – oscillations, additional maxima etc. It is demonstrated here in the frame of a model of hydrogen atom surrounded by a barrier that for reasonable values of it leads to non-physical oscillations that are almost as strong as physical oscillations in the two-atomic molecule photoionization cross-section.

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