What do we really know about radiative strength functions?

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It has been well established that the decay of levels in medium-weight and heavy nuclei at excitation energies above the pairing gap is not governed exclusively by structural effects as with increasing excitation energy statistical properties are starting to play a dominant role. The so-called Radiative Strength Functions (RSFs) for different multipolarities are the key entities describing the statistical γ-decay, being at the same time directly related to the photoabsorption cross section. It is well known that RSFs and photoabsorption cross sections at energies above the threshold for particle emission are well described by the Lorentzian shape of the Giant Electric Dipole Resonance (GEDR) with the maximum near 15 MeV and a width of about 5 MeV. On the other hand, shapes of RSFs at the low-energy tail of GEDR are known rather poorly.

In this contribution the main difficulties with the extraction of the RSFs from different experiments at γ-ray energies below the particle emission will be emphasized. A special attention will be paid to a mutual comparison of PSFs deduced from (n,γ), (γ,γ') and particle-induced reactions using so-called Oslo method. It will be shown that with the available techniques for extracting the data on RSFs the different reactions yield inconsistent results. At present, it is thus very difficult to make a reliable comparison of experimental data on these quantities with theoretical predictions.