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Structure functions from the Compton amplitude

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We have initiated a program to compute the Compton amplitude with the Feynman-Hellman method. This amplitude is related to the structure function via a Fredholm integral equation of the first kind. It is known that these types of equations are inherently ill-posed - they are, e.g., extremely sensitive to perturbations of the system. We discuss some methods which are candidates to handle these problems. Among them we investigate simple model-fitting, singular value decomposition and Bayesian approaches with the maximum entropy method. Special attention is drawn to the physical region of the omega parameter, where we have to take the principal value.

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