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Revealing proton structure with neural networks

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Understanding the internal structure of the proton —that is, how it is built from its fundamental constituents, quarks and gluons —is one of the great challenges of modern high-energy physics. The three-dimensional distribution of quarks and gluons is encoded in terms of the so called generalized parton distributions (GPDs), and the most promising access to these functions is via the process of deeply virtual Compton scattering (DVCS).

We will show our global analyses of the available DVCS data leading to the extraction of relevant structure functions in a model-dependent way. To overcome the problem of model bias, which is particularly dangerous in this context, we describe the analogous procedure using unbiased neural networks. As an application, we discus the possibility of measurement of pressure inside the proton [1].

[1] K. Kumericki, *Measurability of pressure inside the proton*, Nature **570** (2019) E1

Secondary track (number)

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