

Application for a:	Incoming Scheme NEWFELPRO Fellowship for senior researcher
Proposal Acronym:	THEP
Proposal Title:	Theory of hard exclusive processes in Quantum Chromodynamics
Research area(s):	Physics PHY
Research sub-disciplines:	particle physics, nuclear physics
Category of research:	basic
Duration in months:	24
Keywords:	quantum chromodynamics, deeply virtual Compton scattering, deeply virtual meson production, generalized parton distributions
Abstract:	<p>Exclusive hadronic processes offer a particularly suitable arena for studying the high-energy behavior of hadrons and the underlying dynamics of their elementary constituents. In the limit of large momentum transfer, i.e., the hard case, the theory of these processes is based on Quantum Chromodynamics (QCD) factorization theorems. Generalized parton distributions (GPDs) reveal the partonic content of hadrons, in particular, the proton, and are accessible from hard exclusive processes such as deeply virtual Compton scattering and deeply virtual meson production measured on various facilities (DESY, JLAB , planned at COMPASS II@CERN and JLAB@12GeV, proposed at a EIC). In this project we plan to finalize the underlying theory to the next-to-leading order accuracy in the strong coupling constant and improve a phenomenological description by global fitting procedure. This project is the next step towards the quantification of the partonic description of hadrons in a unifying manner.</p>
Does this proposal possess any of the sensitive ethical issues detailed in ethical issues table?	No