momentum-dependent mass function markedly affects the separate behaviors of $u_v^\pi(x)$ and $u_v^K(x)$, especially on the valence-quark domain. However, the preliminary indication is that it does not materially affect the ratio; e.g.,

$$\left.\frac{u_v^K(x)}{u_v^\pi(x)}\right|_{\rm DSE} \stackrel{x\to 1}{=} 0.31 \qquad \text{cf.} \qquad \left.\frac{u_v^K(x)}{u_v^\pi(x)}\right|_{\rm NJL^{HC}} \stackrel{x\to 1}{=} 0.37\,. \tag{VI.99}$$

We anticipated a nonzero value for the ratio because, in the neighborhood of $x = 1$, the u-quark distribution should have the same pointwise behavior in all pseudoscalar mesons. These features and predictions add additional emphasis to the need for a much improved measurement of the kaon structure functions. Before claiming understanding of QCD, it is crucial to verify the predicted large-x behavior, especially those properties which are environment-dependent and those which are not.

The calculation of baryon valence-quark distribution functions is also possible; e.g., using the Poincaré covariant Faddeev equation described in App. B. This approach capitalizes on the importance of scalar and axial-vector diquark correlations within the nucleon. In QCD these correlations are essentially nonpointlike (Alexandrou *et al.*, 2006; Maris, 2004). While no DSE computations of the pointwise behavior of the nucleon structure functions are yet available, based on the diquark-correlation probabilities presented in Table 2 of the DSE study of nucleon electromagnetic form factors described in (Cloët *et al.*, 2009) and the fact that the ratio is a fixed-point under evolution, one can estimate

$$\frac{d(x)}{u(x)} \stackrel{x\to 1}{\approx} 0.12 \;\Rightarrow \frac{F_2^n(x)}{F_2^p(x)} \stackrel{x\to 1}{\approx} 0.36\,, \tag{VI.100}$$

cf. Eqs. (V.5), (VI.6) and (VI.46), and Figs. II.10, VI.28 and VI.35. In addition, the nonzero value highlights the important role of axial-vector diquark correlations: they enable a truly valence d-quark to carry the proton's helicity, which is impossible if scalar diquarks are the only correlations present in the proton's Faddeev amplitude.

VII. PERSPECTIVE AND PROSPECTS

Understanding the physics of hadrons on the valence-quark domain is a definitive task for hadron physics. Indeed, a given hadron is defined by its flavor content and that is a valence-quark property. Whilst significant continuing and new investments in experiment and theory are required in order to acquire this understanding, the potential rewards are