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## Peripheral transverse densities in the light-front formulation of chiral dynamics

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The transverse densities of charge and magnetization in the nucleon are studied at peripheral transverse distances ( $\sim O(M_\pi^{-1})$ ), where they are dominated by chiral dynamics and can be calculated model-independently using ChEFT. The densities are represented as overlap integrals of chiral light-front wave functions, describing the transition of the initial nucleon to soft pion-nucleon (and Delta) intermediate states and back [1]. This first-quantized representation of chiral dynamics permits a simple quantum-mechanical interpretation and reveals new features of the transverse densities. The orbital motion of the peripheral pion causes a large left-right asymmetry of the current in a transversely polarized nucleon, which results in the approximate equality of the peripheral charge and magnetization densities. The striking effect testifies to the essentially relativistic nature of chiral dynamics and could be observed in nucleon electromagnetic form factor measurements at low momentum transfer. The methodology developed here can be applied to nucleon form factors of other operators, such as the energy-momentum tensor.

### References

[1] C. Granados, C. Weiss, arXiv:1503.02055, arXiv:1503.04839

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