Abstract Submitted
for the SES06 Meeting of
The American Physical Society

New Parametrization for Generalized Parton Distributions with Non-Zero Skewedness HELI HONKANEN, SWADHIN K. TANEJA, SAEED AHMAD, SIMONETTA LIUTI, University of Virginia — We present a physically motivated parameterization for the unpolarized generalized parton distributions of the nucleon, $H(X,\zeta,t)$ and $E(X,\zeta,t)$, obtained from Deeply Virtual Compton Scattering (DVCS) experiments, where X is the struck parton's momentum fraction, ζ, skewedness parameter, is the fraction of longitudinal momentum transfer between the incoming (virtual) photon and the outgoing photon, and t is the four-momentum transfer squared. At variance with other physically constrained parametrizations available in the literature [1,2], ours is the first one that applies to both zero and non-zero values of the skewedness parameter, ζ. We define H and E using overlap integrals of the nucleon light-cone wave functions at large values of X [3], and assuming Regge behavior at low X. At $\zeta = 0$ we use the constraints provided by simultaneous fits to experimental data on both the elastic nucleon form factors and the "forward" parton distributions from deep inelastic scattering. Our results at $\zeta = 0$ are of the same quality of the ones obtained in [1,2]. In order to extend our parametrization to $\zeta \neq 0$, we work out additional constraints from recent lattice calculations of higher moments of generalized parton distributions [4]. [1] M. Diehl, T. Feldmann, R. Jakob and P. Kroll, Eur. Phys. J. C **39**, 1 (2005) [2] M. Guidal, M. V. Polyakov, A. V. Radyushkin and M. Vanderhaeghen, Phys. Rev. D **72**, 054013 (2005) [3] S. J. Brodsky, M. Diehl and D. S. Hwang, Nucl. Phys. B **596**, 99 (2001) [4] G. Schierholz and J. Zanotti, *private communication*.

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Date submitted: 11 Sep 2006 Electronic form version 1.4