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Deeply virtual Compton scattering off the neutron MERIEM BENALI, Facult des sciences de Monastir, Tunisia, HALL A COLLABORATION, JLAB COLLABORATION — The best way to probe the three dimensional structure of nucleons (protons and neutrons) is through the so-called Deeply Virtual Compton Scattering (DVCS), where a high energy electron is scattered off a nucleon which in turns emits a high energy photon. This photon is produced by one of the quarks inside the nucleon and carries information about its transverse position and longitudinal momentum. Our experiment was performed in the Hall A of Jefferson Lab to measure the unpolarized cross sections of the DVCS off the neutron in the valence region ($x_B = 0.36$) at $Q^2 = 1.75 \text{ GeV}^2$ for two beam energies. On the one hand, DVCS off the neutron is sensitive to the GPD "E", the least constrained GPD. This GPD is closely linked to the quark orbital momenta which may constitute the missing piece of the nucleon spin puzzle. On the other hand, by combining proton and neutron data taken at the same x_B , Q^2 and t , we have extracted separately the contributions from the u and d quark flavours to the helicity-conserved Compton form factors (related to the GPDs). The first observation of DVCS off a neutron and an estimated flavor decomposition of the u and d quarks contributions to the photon electroproduction cross sections will be presented here.

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