Spin density matrix elements for radiative decays of the omega meson in photoproduction at 5 GeV FRIDAH MOKAYA, Univ of Connecticut - Storrs — The photoproduction of $\omega(782)$ meson on the nucleon at high energies is well described by a sum of t-channel exchanges. In the high energy limit of diffractive scattering, where Pomeron exchange dominates the total cross section, the helicity of the incident photon is transferred directly to the vector meson. At intermediate energies, other Regge exchanges compete with the Pomeron, leading to a complex energy dependence in the spin density matrix for vector mesons like the omega. High statistics measurements of the spin density matrix elements for the reaction $\gamma p \rightarrow \omega p$, $\omega \rightarrow \pi^0 \gamma$ are presented based on data taken with the Radphi experiment at Jefferson Lab in the energy range 4.4 - 5.5 GeV. The results binned in E_γ and $|t|$ are analysed in both the Gottfried Jackson and s-channel helicity frames and compared to a model with the Pomeron and other Regge exchanges contributing to the omega meson photoproduction amplitude.

Fridah Mokaya
Univ of Connecticut - Storrs