Injectivity of the Double Fibration Transform for Cycle Spaces of Flag Domains

The basic setup consists of a complex flag manifold $Z = G/Q$ where $G$ is a complex semisimple Lie group and $Q$ is a parabolic subgroup, an open orbit $D = G_0(z) \subset Z$ where $G_0$ is a real form of $G$, and a $G_0$-homogeneous holomorphic vector bundle $E \to D$. The topic here is the double fibration transform $\mathcal{P} : H^q(D; \mathcal{O}(E)) \to H^0(M_D; \mathcal{O}(E'))$ where $q$ is given by the geometry of $D$, $M_D$ is the cycle space of $D$, and $E' \to M_D$ is a certain naturally derived holomorphic vector bundle. Schubert intersection theory is used to show that $\mathcal{P}$ is injective whenever $E$ is sufficiently negative.