

Given a Stein neighbourhood U in F_{13} . Then, (6) maps first Čech cohomology representatives on $\mu^{-1}(U)$ to global functions on $\mu^{-1}(U)$ and preserves cohomology classes. In other words, we have a map

$$(7) \quad \oint : \mu_*^1 \mathcal{O}_{(p,r)[-q-2]}(U) \xrightarrow{\cong} \mu_* \mathcal{O}_{(p-1-q, r-1-q)[q]}(U).$$

This involves picking a (suitably nice) Stein cover of $\mu^{-1}(U)$, and choosing a (smooth) family of branched contours (one on each fibre over U) compatible with this cover. Roughly, this means that each double overlap of the cover (restricted to a fibre) contains exactly one branch. (Branched contours are explained in detail in "Spinors and Spacetime II"). Then, a splitting process due to Spaling and Ward (See TN 1) is performed to give the result.

All this is just a generalisation of the usual zero rest mass integral procedure.

Anyway, by choosing the U 's to be the n -fold overlaps of a (nice) Stein cover of F_{13} , (7) induces the map

$$\oint : H^{n-1}(F_{13}, \mu_*^1 \mathcal{O}_{(p,r)[-q-2]}) \xrightarrow{\cong} H^{n-1}(F_{13}, \mu_* \mathcal{O}_{(p-q-1, r-q-1)[q]})$$

which realizes the middle step of (5).

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Coming soon

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