

# HOMOTOPIES TO DIFFEOMORPHISMS IN SYMPLECTIC FIELD THEORY

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Homotopies between non-compact Lagrangian submanifolds are considered, and using the Fukaya conjecture relative to the Witten deformation of higher product structures conforming a Fukaya category  $\mathcal{W}(H)$ , from the perspective of the Floer complexes, which determine diffeomorphisms  $C_{-*}(\Omega_x) \rightarrow \mathcal{W}(H)$ , whose space of paths go from  $\gamma(x)$ , to  $\phi(x)$ , foreseen in  $HW^*(L_0, L_1) \cong H_{-*}(\mathcal{P}_{x_0, x_1})$ . Then the field ramification of the space  $C_{-*}(\Omega_x)$ , is a connection obtained under the following commutative category scheme [1]:

$$\begin{array}{ccc}
 \text{mod}(B) & \xrightarrow{\mathcal{R}^{-1}} & C \\
 \nearrow \quad \downarrow & & \nearrow \quad \downarrow \\
 O_c(\phi) \in H(\text{mod}f(C_{-*}(\Omega Z))) & \longrightarrow & H(\mathcal{M}) \quad \mathcal{M} \\
 \downarrow \quad \nearrow \Omega Z & \longrightarrow & \downarrow \text{emb} \quad \nearrow \\
 & \xrightarrow{\text{Diff}} & C_{-*}(\Omega_x) \quad \mathcal{W}(H) \ni \phi
 \end{array} \tag{1}$$

Note. Here  $\mathcal{W}(H)$ , represents the wrappings of the flow of geodesics, which physically represents that happen in the dual space obtained for the product of the diffeomorphism given in the Čech complex defined by  $C = \oplus_I \Gamma(U_I)[-d]$ , that is to say, of the “states”  $\phi(x)$ , which are connected by the paths of the cohomology of the paths in  $Z$ , from  $\phi(x_0)$ , to  $\phi(x_1)$ .

the other conjecture that must be planted is that as consequence of the derived categories scheme(1) is:

**Conjecture 1.** *Direction is time and translation is space in the space-time.*

**Keywords:** Čech Complex, Diffeomorphisms, Floer Cohomology, Fukaya Category, Homotopy, Lagrangian submanifolds.

## REFERENCES

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