

Research plan

We get informations about geometric situations from algebraic methods (Hodge structure). Simpson rewrite its algebraic structure to a geometric structure (twistor structure). Then we can work in a more general situation.

I want to know what is a generalization from Hodge theory in the twistor theory, and what corresponds to the theory which we have already had in the geometry. For this purpose I must study a Hodge theory.

On the other hand, we have a tt^* Geometry in a singularity theory. Cecotti and Vafa considered moduli spaces of $N = 2$ supersymmetric quantum field theories. From this theory we have a CV-structure. Hertling proves CV-structure containing the twistor structure in a special case.

I want to study a correspondence between CV-structure and twistor structure, and what corresponds to CV-structure in the first geometric situation.