

QUANTIZING THE HOLOMORPHIC BOSONIC STRING

1. OBSTRUCTION DEFORMATION COMPLEX

compute obstruction groups. Symmetry arguments to argue relevant terms.

1.1. **Jets.** The role of \mathfrak{g}_X here is bookkeeping, so we denote it by \mathfrak{g} for now. We use the coordinate z on \mathbb{C} , and we let ∂_z denote $\frac{\partial}{\partial z}$.

The Lie algebra $\mathfrak{v} = \mathbb{C}[[z]]\partial_z$ has a natural basis $L_n := iz^{n+1}\partial_z$, with $n \geq -1$. With respect to this basis we have

$$[L_m, L_n] = (m - n)L_{m+n}.$$

Thus, the L_0 element induces a natural filtration on \mathfrak{v} : (1) z^k has weight k , (2) ∂_z has weight -1 .

2. CALCULATING THE OBSTRUCTIONS

2.1. **The “string” condition.** $ch_2(T_X)$

2.2. **The “Calabi-Yau” condition.** $ch_1(T_X)$.

2.3. **The conformal anomaly.**

3. MAIN RESULT

existence of quantization