

## Lecture 2 Possible Sketch

July-11-11  
9:31 AM

Take formulas from  
my thesis.

1.  $\int \text{tr}_R(\text{hol}_g(A)) \cdot \left( \frac{ik}{4\pi} \int_{\mathbb{R}^3} A \wedge dA + \frac{2}{3} A \wedge A \wedge A \right)$   
g-connections
2. Problem:  $A \wedge dA = \langle A, *dA \rangle$ ;  $*d$  is not  
remotely invertible!
3. Faddeev-Popov in  $\mathbb{R}^n$
4. Perturbation theory for determinants in  $\mathbb{R}^n$ .
5. Berezin integration.
6. The C.S. Case: inverting  $\Delta$  &  $L^-$ .
7. The Feynman rules
8. Reformulation in terms of configuration  
space integrals.