

Dyson-Schwinger Eqs and Quantization of gauge theories (Summer '21) Dirk Kreimer (July 06 2021)

Hints for the exams

25 min.

- i) be able to explain the structure of a combinatorial DSE (graphs, trees).
give an example for sub-th of algebras

$$\begin{aligned} X(\alpha) &= 1 + \alpha B_\alpha(X^2(\alpha)) \\ &= 1 + \sum_{k \geq 1} \alpha^k c_k \end{aligned}$$

$$c_1 = 0 \quad c_2 = 2 \quad , \dots$$

- ii) give an example of co-ideals in a gauge theory

- iii) explain a bit in quantitative terms what happens with non-perturbative aspects of DSE

- iv) ... free discussion on things you found interesting ...

