

Scalar superfield: Σ

$\Sigma \equiv \Sigma(x; \theta, \theta^\dagger)$ is a complex-valued function of supercoordinates.

- understood in terms of its power-series in θ and θ^\dagger which terminates.

$$\begin{aligned} \Sigma(x; \theta, \theta^\dagger) = & \phi(x) + \chi^\alpha(x) \theta_\alpha + \theta^\dagger_{\dot{\alpha}} \xi^{\dagger\dot{\alpha}}(x) + \theta^\alpha \theta_\alpha f(x) + \theta^\dagger_{\dot{\alpha}} \theta^{\dagger\dot{\alpha}} g(x) \\ & + \theta^\alpha \sigma^\mu_{\alpha\beta} \theta^{\dagger\beta} V_\mu(x) + \theta^\dagger_{\dot{\alpha}} \zeta^{\dagger\dot{\alpha}}(x) \theta^\beta \theta_\beta + \theta^\dagger_{\dot{\alpha}} \theta^{\dagger\dot{\alpha}} \eta^\beta(x) \theta_\beta \\ & + \theta^\dagger_{\dot{\alpha}} \theta^{\dagger\dot{\alpha}} \theta^\beta \theta_\beta d(x) \end{aligned}$$

| | Component fields | (indef. parity) | complex DOF: |
|------------------|---|-----------------|--------------|
| <u>scalars</u> : | $\phi(x)$, $f(x)$, $g(x)$, $d(x)$ | | $1+1+1+1$ |
| <u>spinors</u> : | $\chi_\alpha(x)$, $\xi^{\dagger\dot{\alpha}}(x)$, $\zeta^{\dagger\dot{\alpha}}(x)$, $\eta_\alpha(x)$ | | $2+2+2+2$ |
| <u>vectors</u> : | $V_\mu(x)$ | | <u>4</u> |

TOTAL: 16 complex DOF