

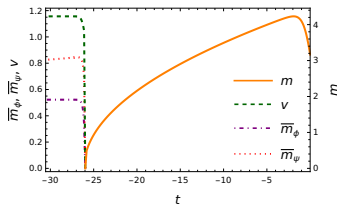
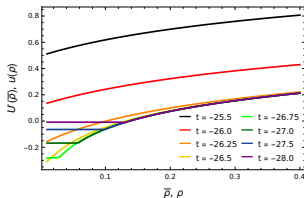
Naturalness with Relativistic Luttinger Fermions

Tim Eckert and Holger Gies

Luttinger–Yukawa model

$$\Gamma_k = \int d^4x \left[-Z_\psi \bar{\psi} G_{\mu\nu} \partial^\mu \partial^\nu \psi + \frac{Z_\phi}{2} \partial_\mu \phi \partial^\mu \phi - h \phi \bar{\psi} \gamma_{11} \psi + U(\bar{\rho}) \right]$$

Natural flow from symmetric to broken regime



Naturalness: marginal mass parameter $\rightarrow$ no fine-tuning

Self-organized criticality