

Minimal Electroweak Baryogenesis with Domain Walls

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with O. Matsedonskyi, A. Weiler

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Motivation

Explain matter-antimatter asymmetry

Ingredients

Standard Model

+

Real Singlet

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Real Singlet

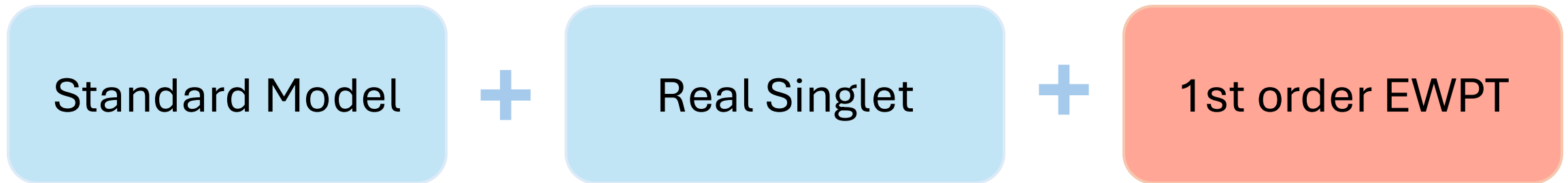
+

1st order EWPT

Motivation

Explain matter-antimatter asymmetry

Ingredients



Well studied!

Motivation

Explain matter-antimatter asymmetry

Ingredients

Standard Model

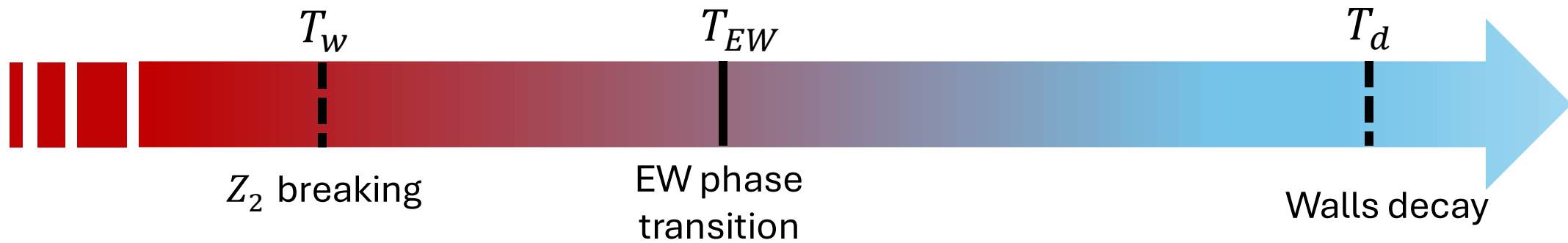
+

Real Singlet

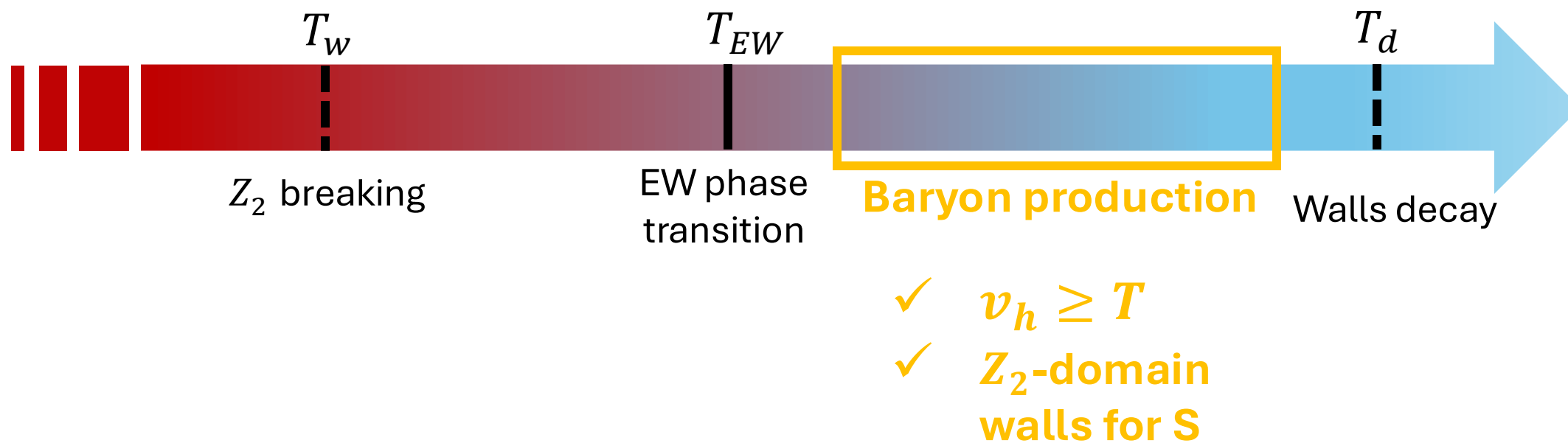
+

Z_2 domain walls

Timeline

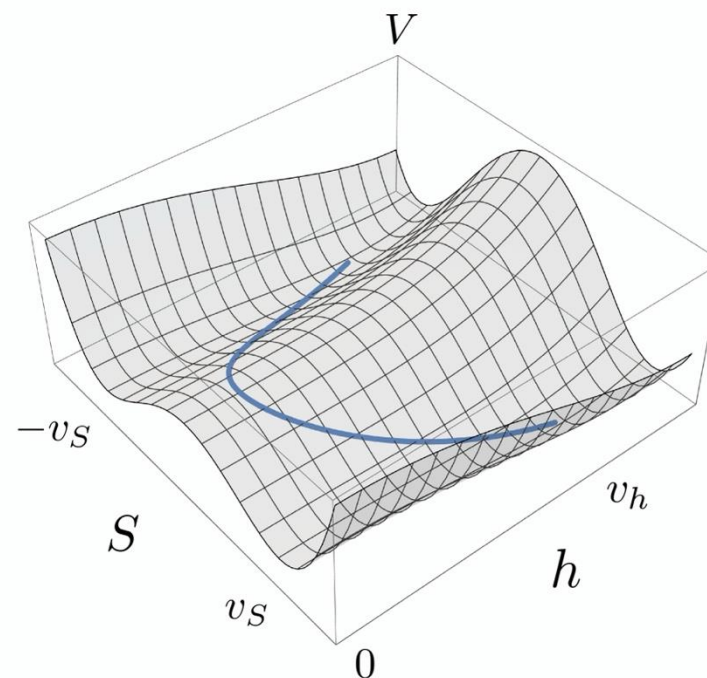
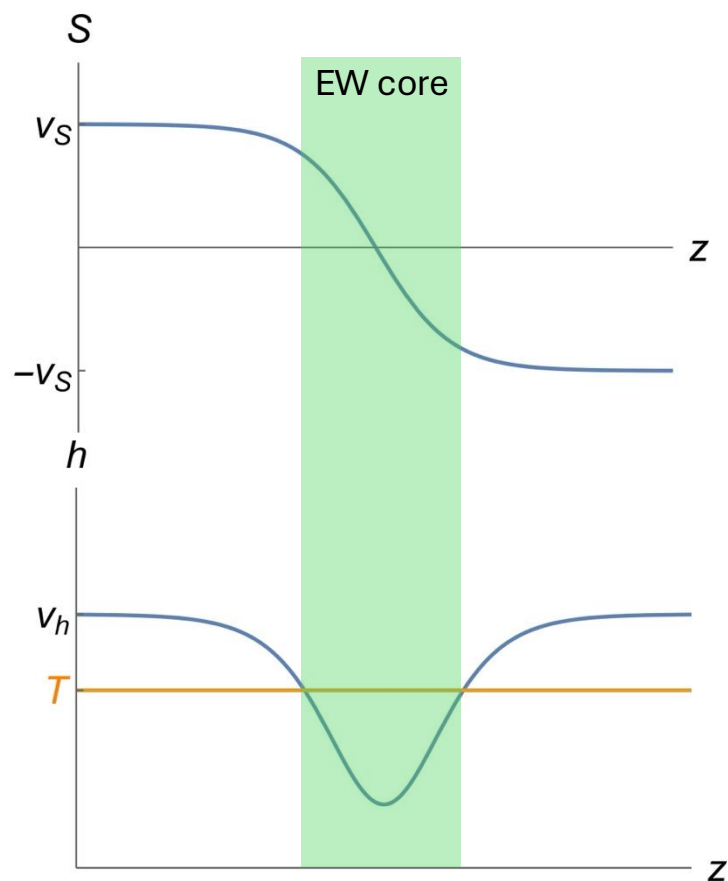


Timeline



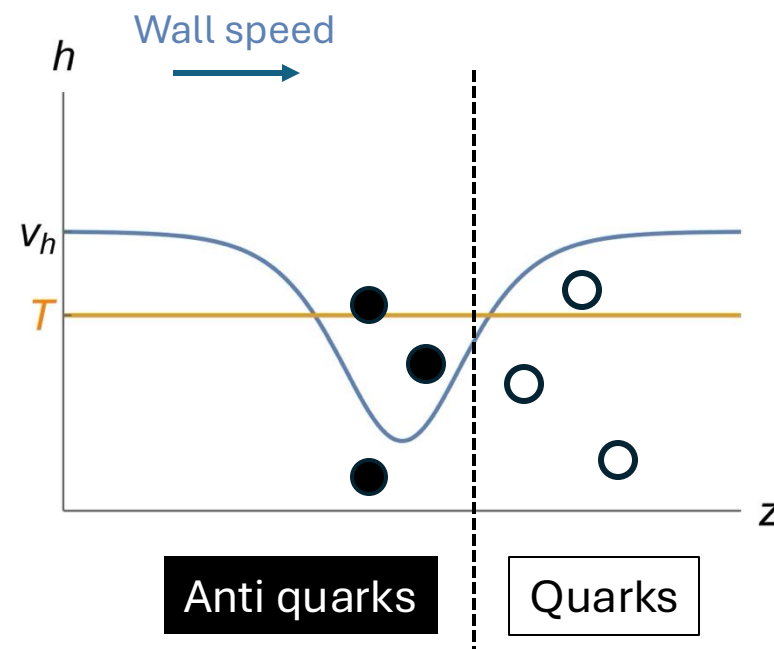
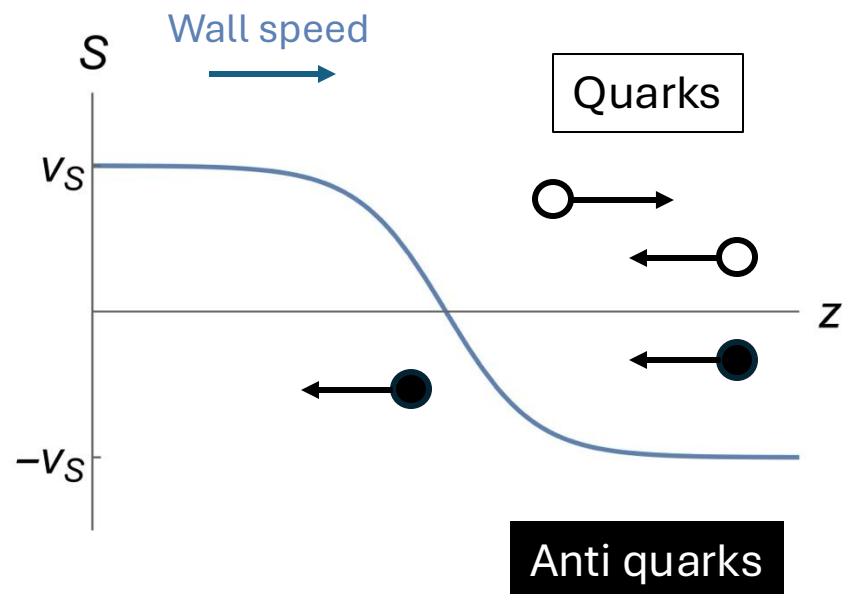
Mechanism

Step 1: EW-restoring walls



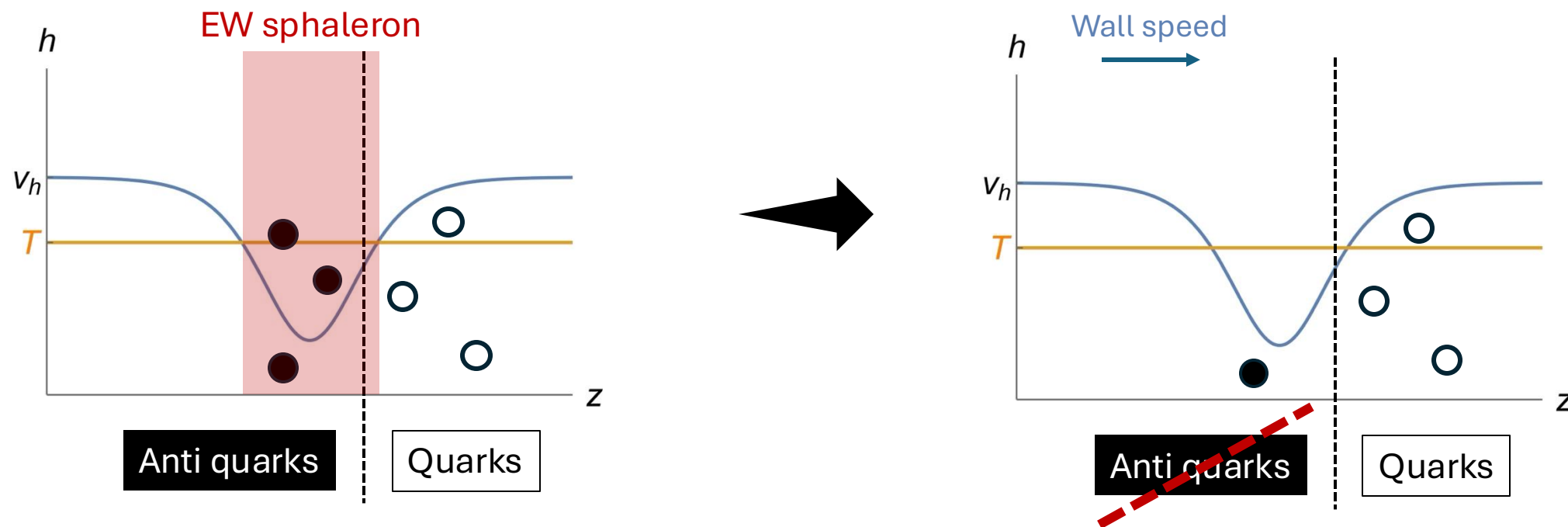
Mechanism

Step 2: CP violation

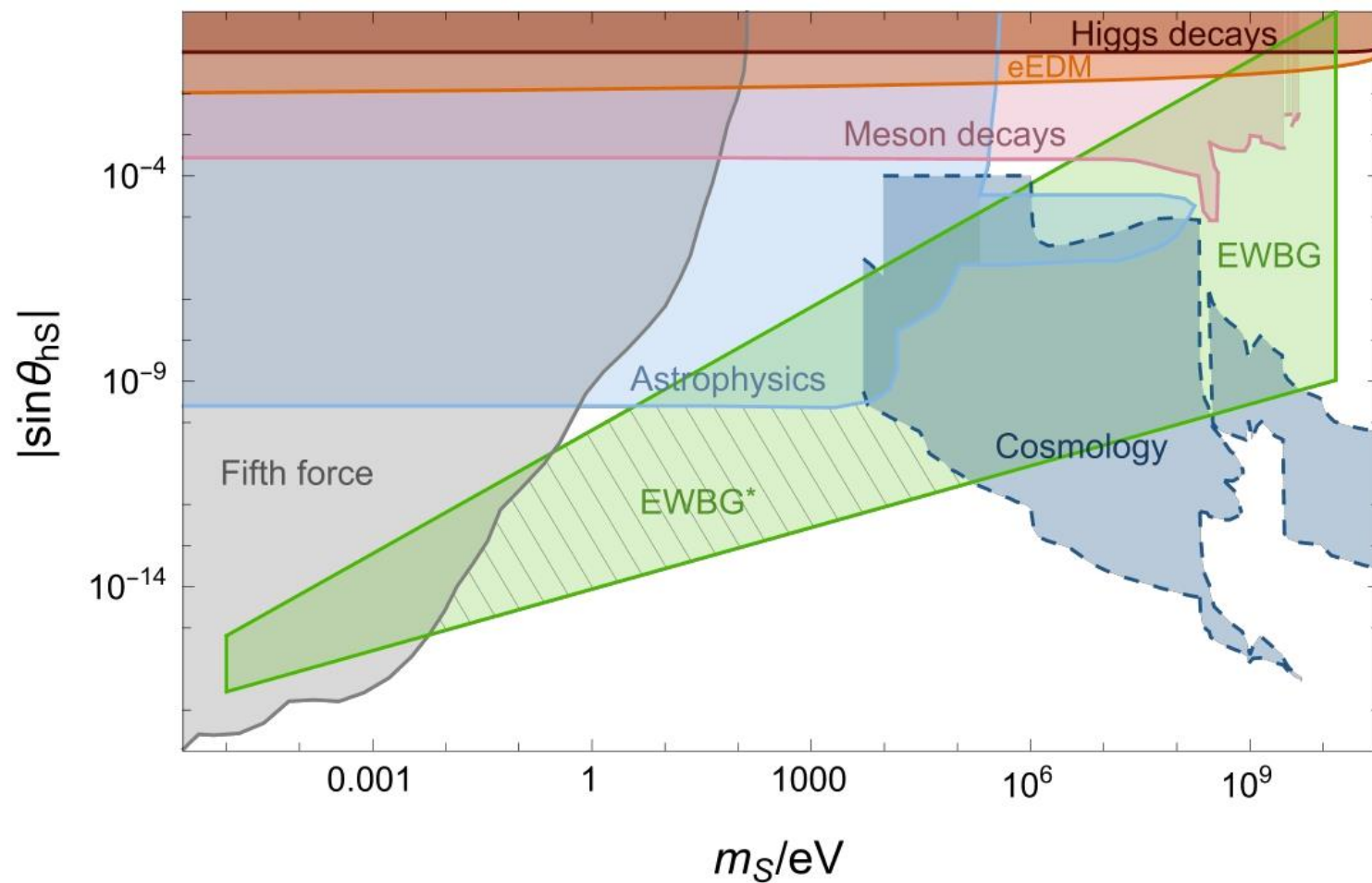


Mechanism

Step 3: EW sphaleron



Conclusions



- ✓ Minimal model, good analytical understanding
- ✓ Mass range:
 $10^{-2} \text{eV} \lesssim m_S \lesssim 15 \text{GeV}$
- ✓ Rich phenomenology

Thanks for the attention :)