

Lattice field theory: $SU(2)$ with $N_f = 2, 4, 6$ and 8 fundamental fermions.

Sara Tähtinen



This survey aims to reveal what you study. Answering takes about three minutes.

(*Answering choices to questions 1,2 and 3 are taken from Department of Physics website and from Website of the high energy theory community.)

1.* Choose research area:

- Experimental particle physics
- Theoretical particle physics and theoretical cosmology
- Observational cosmology
- Astrophysics
- Space physics
- Planetary science

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- Dynamics and fundamental properties of strongly interacting matter
- Fundamental aspects of quantum field and gauge theories and gravity
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- Phase transitions in the early universe
- String theory and the AdS/CFT correspondence

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Specify:

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- Technicolor
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Tell us more about Technicolor:

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- $SU(N)$ theory with N_f fermions.
- Solves hierarchy problem, ..
- Especially active framework is "walking" Technicolor, which can be found just below conformal window**.

(**conformal window = range of N_f , where the theory has infrared fixed point)

4b. You also chose "Lattice Field Theory." Details:

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- Study on lattice: $SU(2)$ with $N_f=2,4,6$ and 8 in fundamental presentation.
 - $N_f=2,4$: chiral symmetry breaking (below conformal window)
 - $N_f=6$: ?????(!!!)
 - $N_f=8$: IRFP (inside conformal window)

Thanks for answering this survey!