

SUSY

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1.- What do we mean when we say SUSY?

SUSY is

NOT a theory,

but a

new physical principle

(a symmetry) that can be implemented in many different ways

In order to set the discussion on a solid basis, we need to give a clear meaning to the word SUSY. Usually, what we mean is a

low energy realization of the SUSY
principle

2.- **Let's the data talk:**

PHYSICS IS AN EXPERIMENTAL SCIENCE

And the main result is:

THERE IS NO EVIDENCE
OF SUSY AT ALL

This has been this way during 30-40 years!!!!

2.- **Let's the data talk: Physics is an experimental science**

THERE IS NO EVIDENCE OF SUSY AT ALL

Taking into account this main result:

- There is **no epistemological justification** for the privileged status that SUSY has with respect to any other extension of the SM
- There is **not a single indication** that the SUSY scale (if it exists) is **within the LHC reach** (neither for any other proposed collider)
- **SUSY is not mandatory**. Therefore, it should not be used as a guide for future projects
- After the current LHC results, **naturality is not a good guiding principle** for particle physics