

EF Vision: Big Questions, Plots, Tables etc. for the EF report

EF and TG convenors

*EF Workshop at Brown University
April 1, 2022*

EF Vision Building

- The EF-level report will need to **convey the EF vision** and summarise the details presented in TG reports in a **concise, simple and appealing way to a broad audience**
- Graphics, plots and tables help convey and summarise the EF vision
- We plan to have graphics, plots and tables with different levels of information and different target types of audience
- **We invite the EF community to provide suggestions and feedback on what information to provide and how**
- So far we (EF&TG convenors) have worked on the following proposals
 - 1) Introduce a small set of **Big Questions** that we want to address in greater detail in TG reports
 - 2) Graphics that links **Big Questions** to **Probes** and to **Signatures**
 - 3) A Table that summarises the **focus and reach of different collider options**

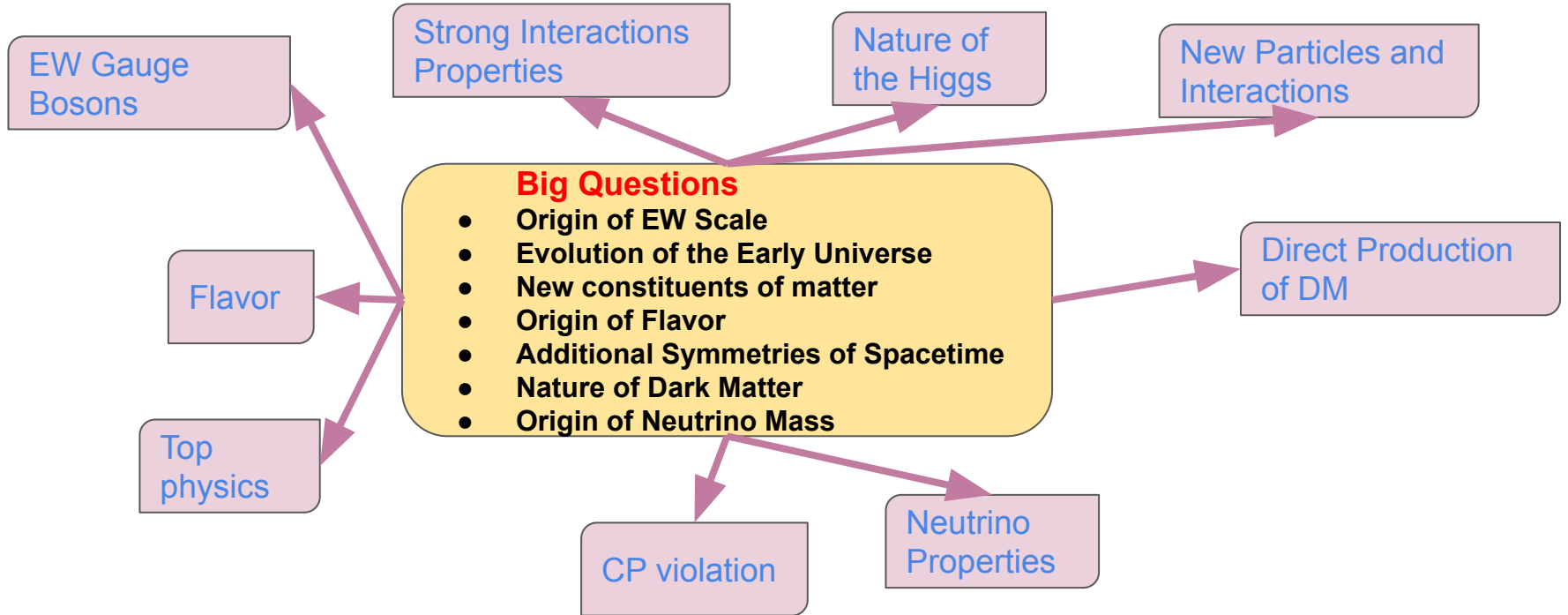
*Let's discuss type of graphics and content rather than aesthetics
(we will have experts/professional make graphics beautiful)*

Big Questions

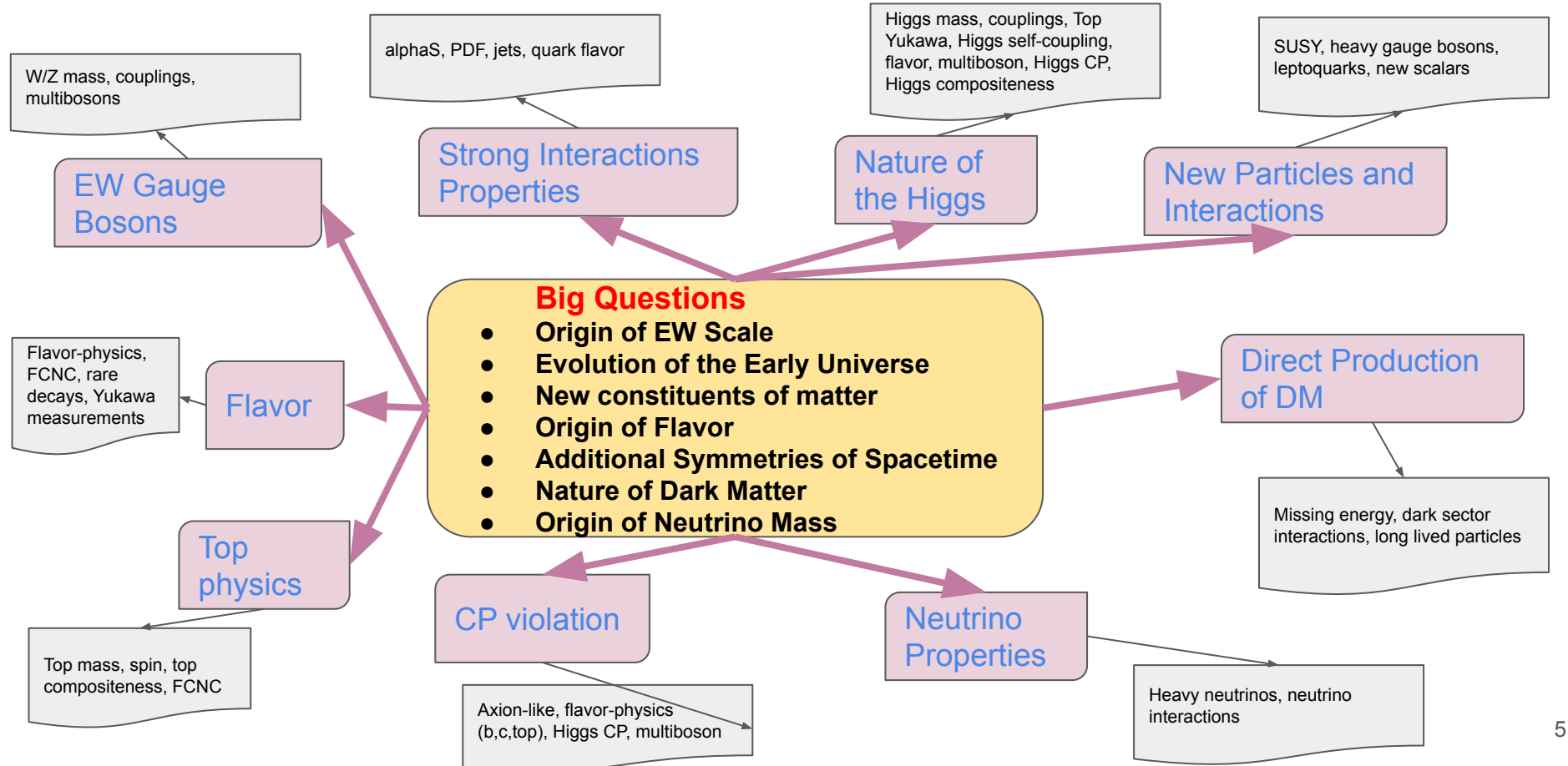
Big Questions

- **Origin of EW Scale**
- **Evolution of the Early Universe**
- **New constituents of matter**
- **Origin of Flavor**
- **Additional Symmetries of Spacetime**
- **Nature of Dark Matter**
- **Origin of Neutrino Mass**

Probes



Examples of Signatures



Focus and Reach of Colliders

Example of signatures that can be studied at various colliders
 By no means exhaustive, to be expanded

Example of Signatures	HL-LHC	e+e-		hh	muon collider	Low Energy Experiments	Neutrino Experiments
		linear	circular				
Multi-Higgs production	<i>ADD CHECK MARKS</i>						
Higgs coupling to light quarks							
Higgs coupling to top							
Higgs coupling to gauge bosons							
Higgs coupling to leptons							
Additional light scalars							
Additional heavy scalars							
Higgs to long lived particles							
Top-quark production							
Rare top-quark decays							
Top-quark EW couplings							
...							