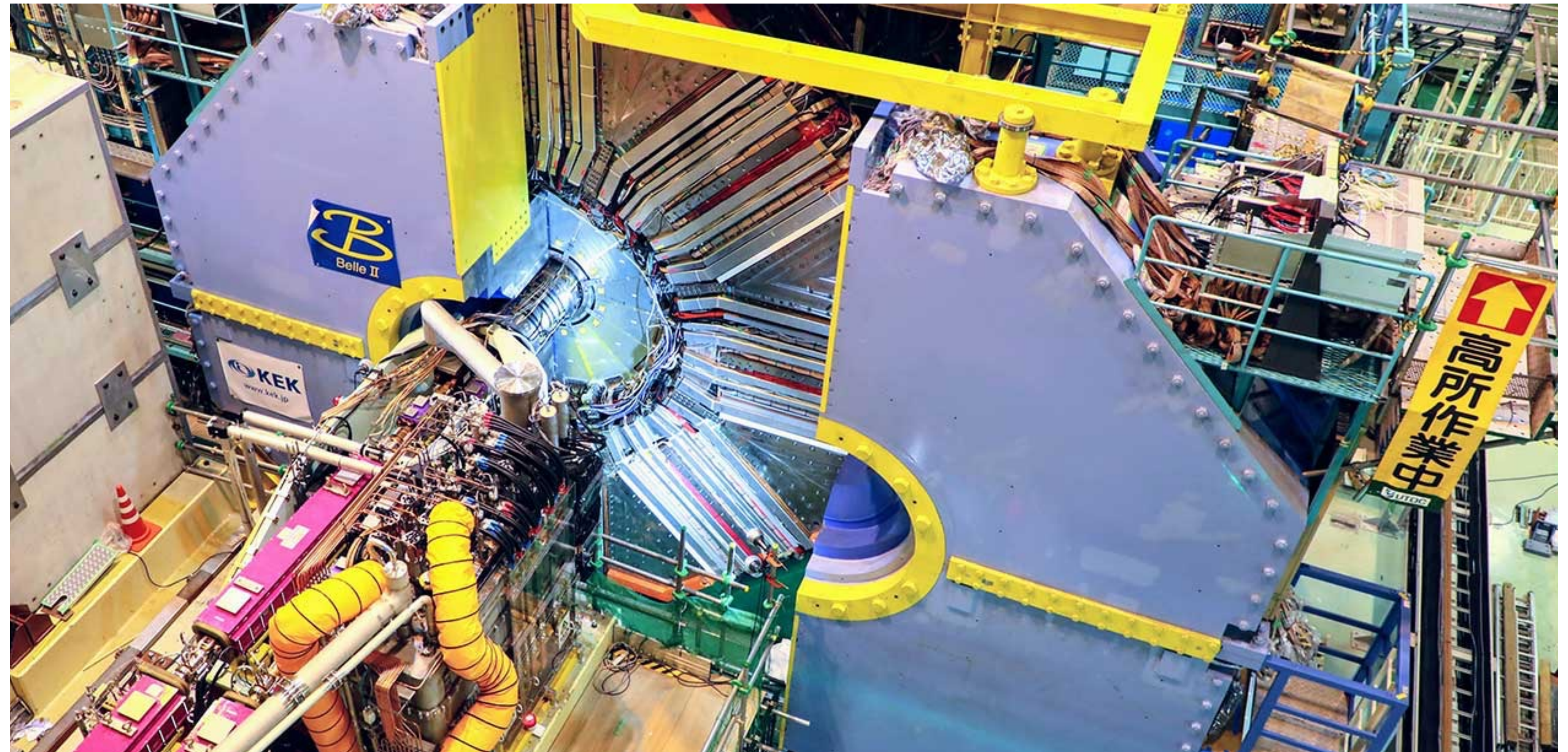


# The Belle II experiment

Alberto Martini

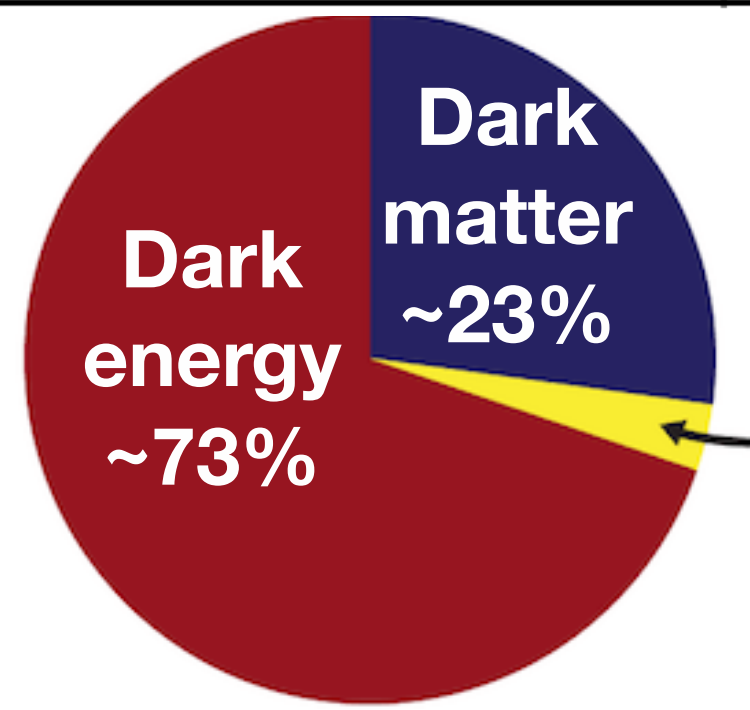
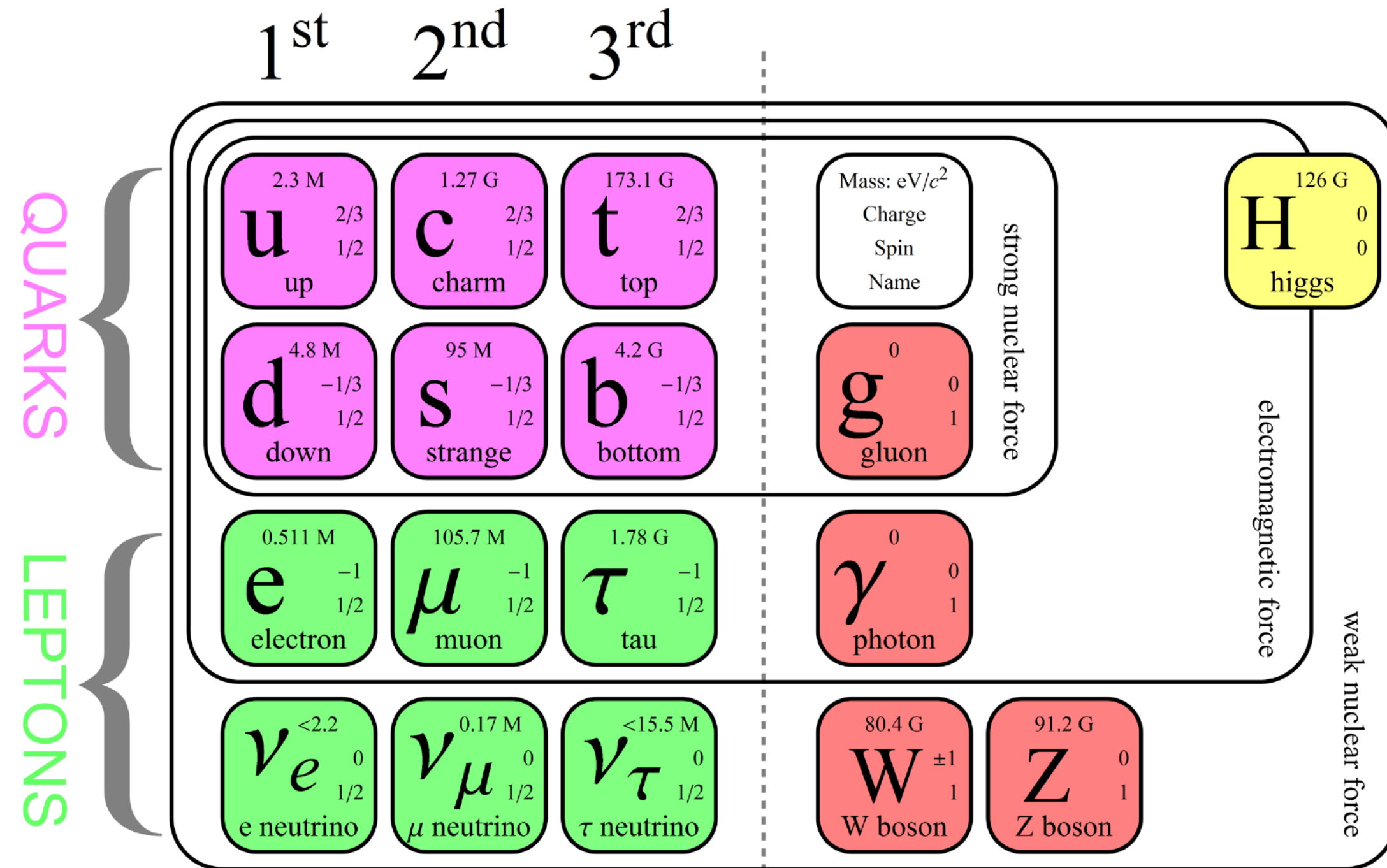
Matter and Universe days - 25 November 2021





# The physics goals

The Standard Model of particle physics is incomplete



What we know...

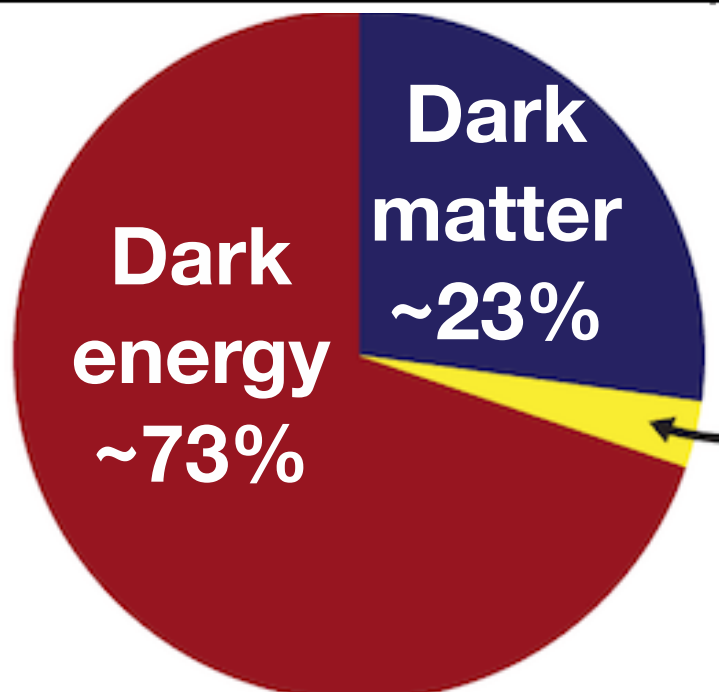
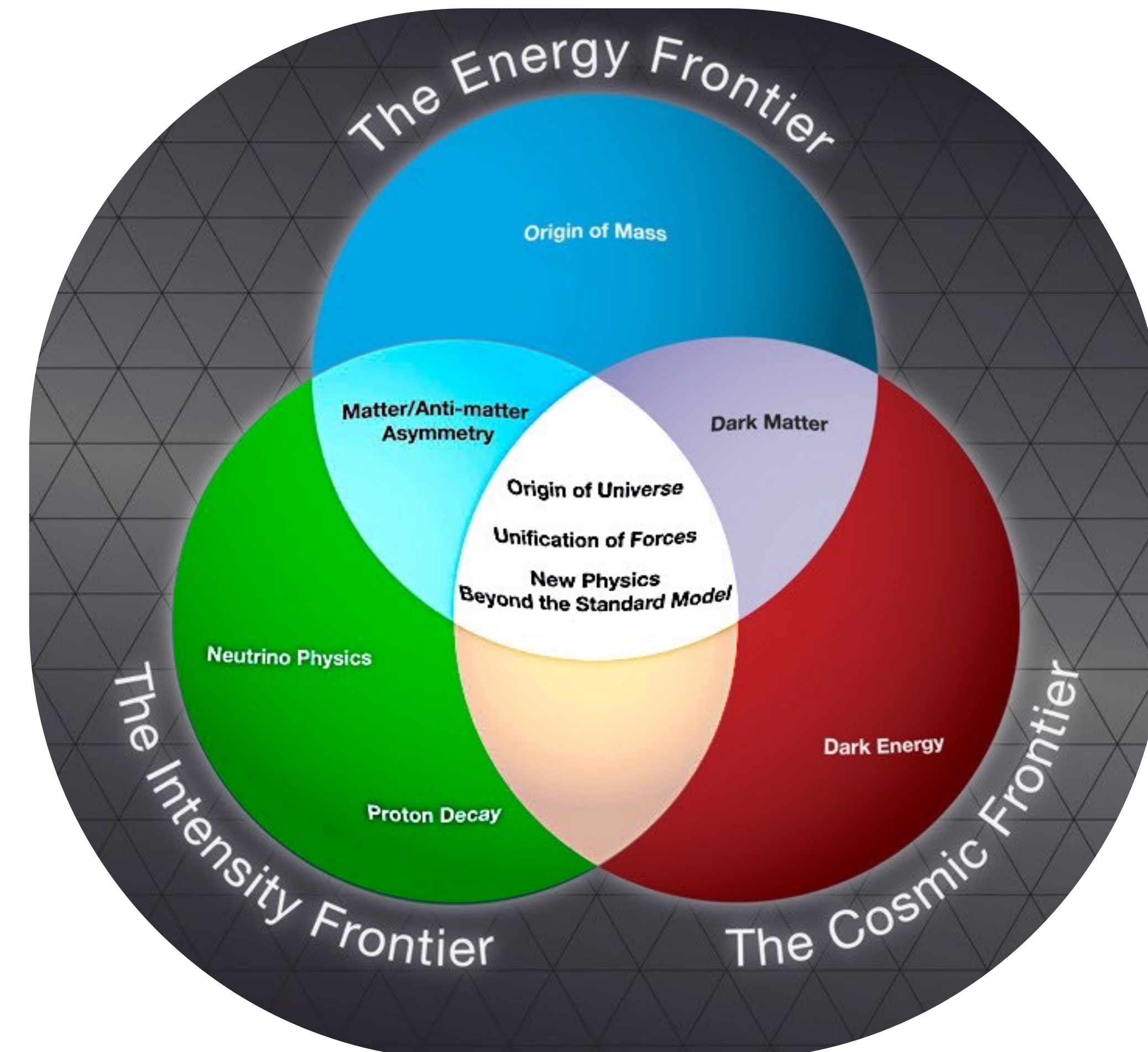
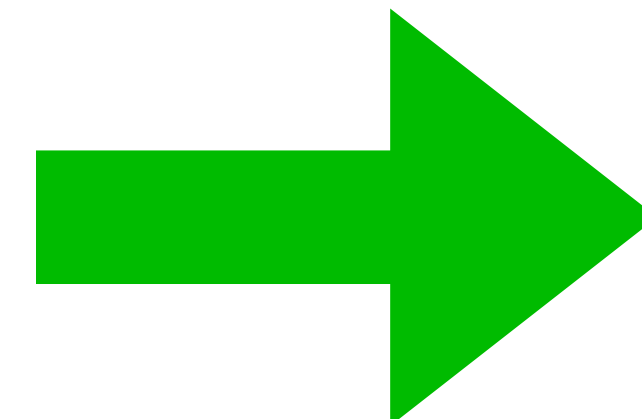
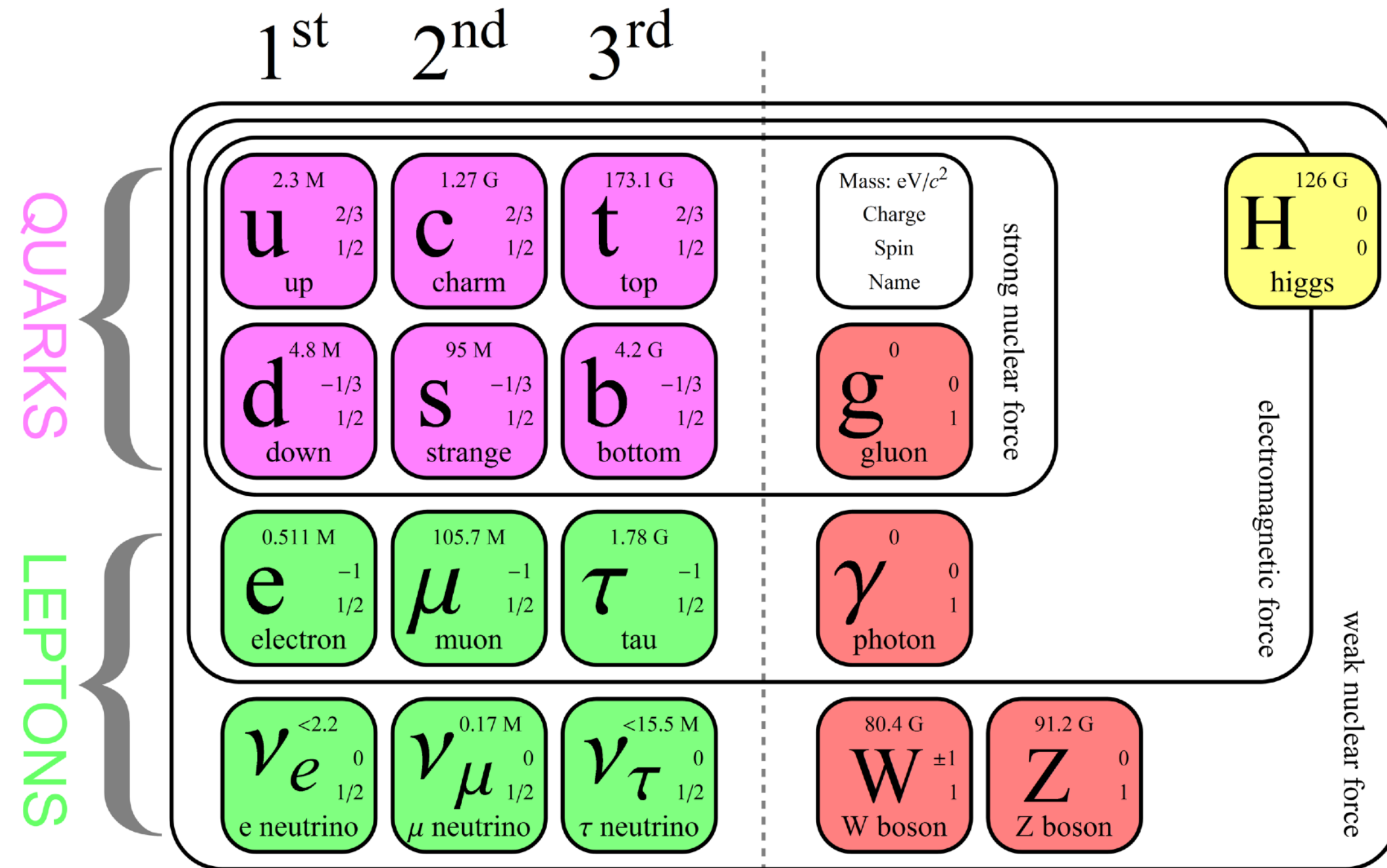




# The physics goals

The Standard Model of particle physics is incomplete... **fortunately!**

*Belle II* is on the **intensity frontier** to study **flavour physics**



What we know...





# The physics goals

The Standard Model of particle physics is incomplete... **fortunately!**

*Belle II*

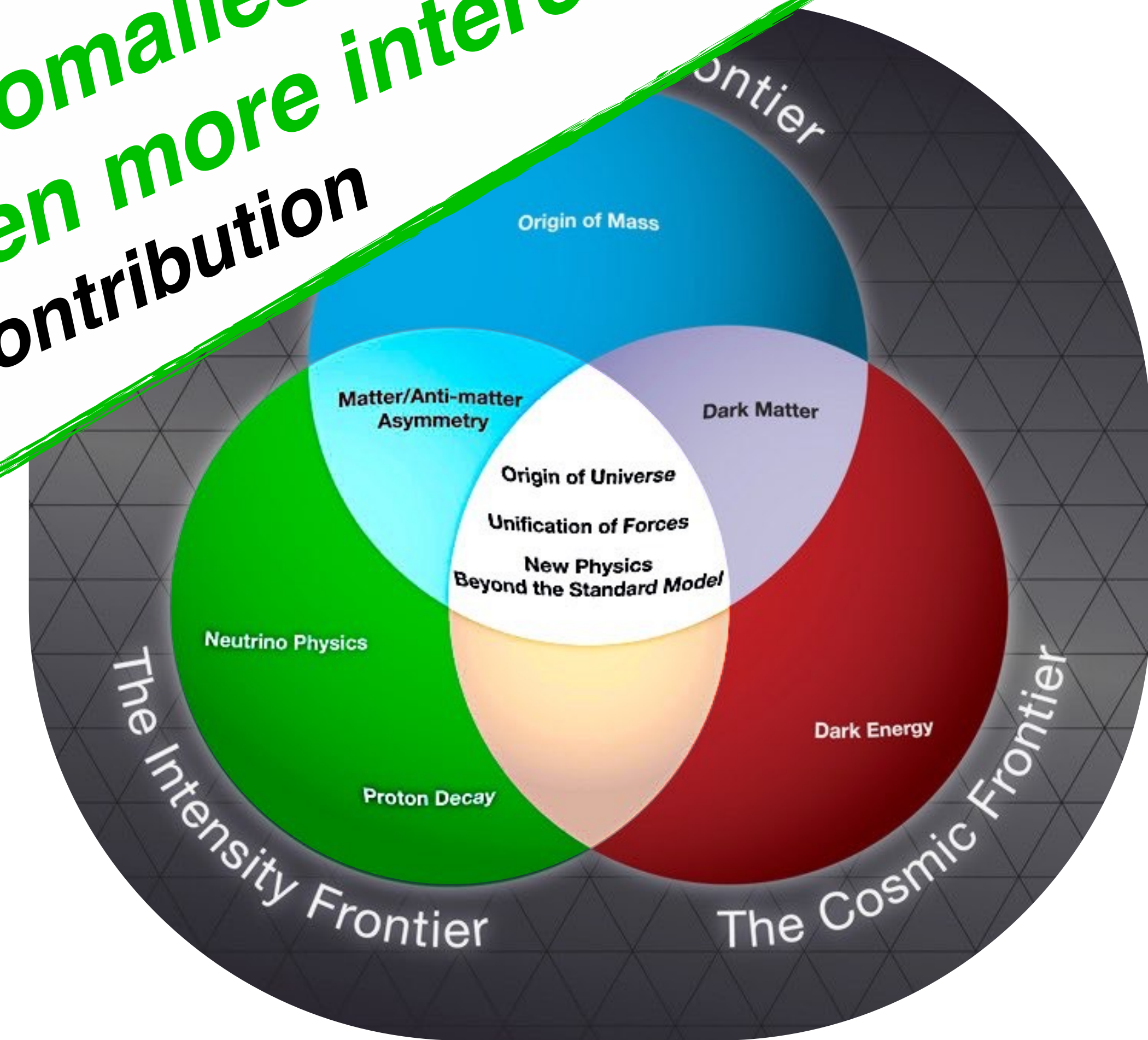
frontier  
ics

QUARKS

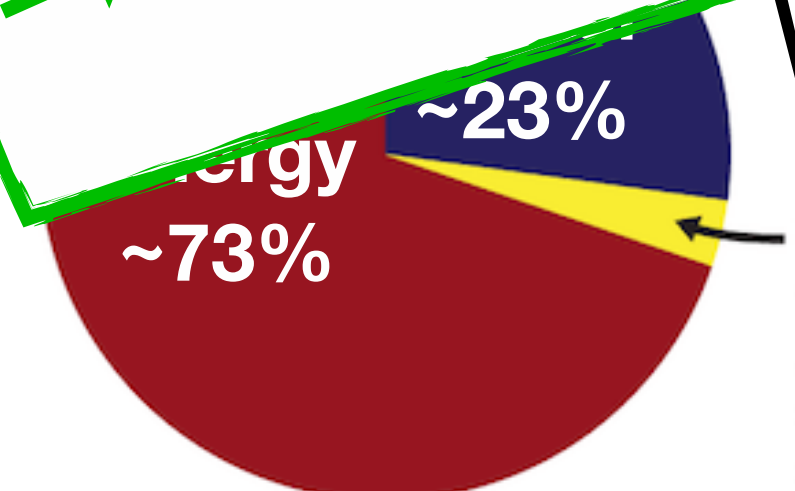
LEPTONS

	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>		
QUARKS	2.3 M <b>u</b> $\frac{2}{3}$ 1/2 up	1.27 G <b>c</b> $\frac{2}{3}$ 1/2 charm	173.1 G <b>t</b> $\frac{2}{3}$ 1/2 top	Mass: eV/c <sup>2</sup> Charge Spin Name strong nuc.	1.28 G <b>g</b> 0 gluon
	4.8 M <b>d</b> $-\frac{1}{3}$ 1/2 down	95 M <b>s</b> $-\frac{1}{3}$ 1/2 strange	4.2 G <b>b</b> $-\frac{1}{3}$ 1/2 bottom		
	0.511 M <b>e</b> $-1$ 1/2 electron	105.7 M <b><math>\mu</math></b> $-1$ 1/2 muon	1.78 G <b><math>\tau</math></b> $-1$ 1/2 tau		
	<b><math>\nu</math></b> $<2.2$ neutrino				

**In recent years a lot of flavour anomalies are found  
 → Belle II physics program is even more interesting!  
 Check Georg Weiglein contribution**



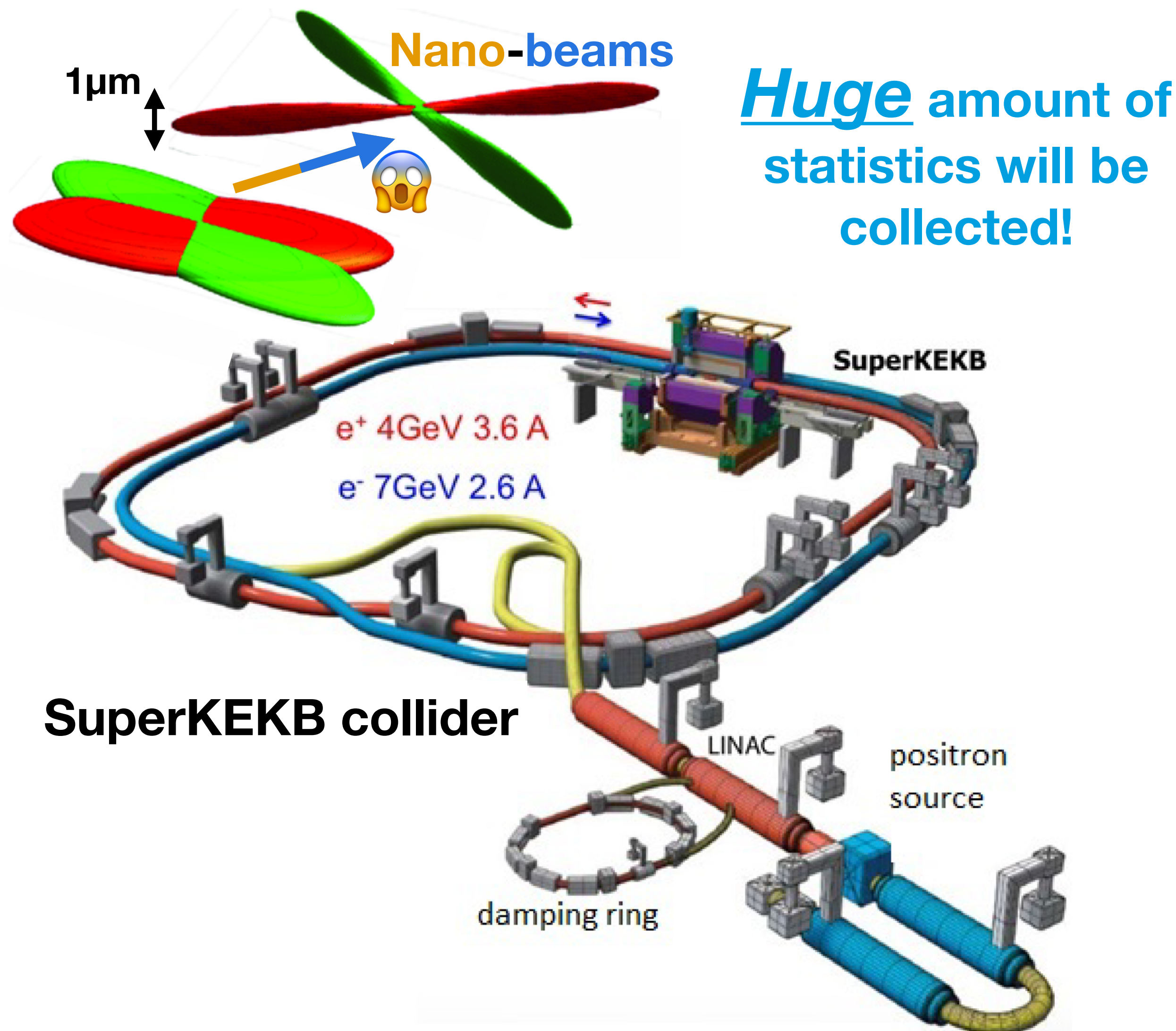
What we know...





# The experiment

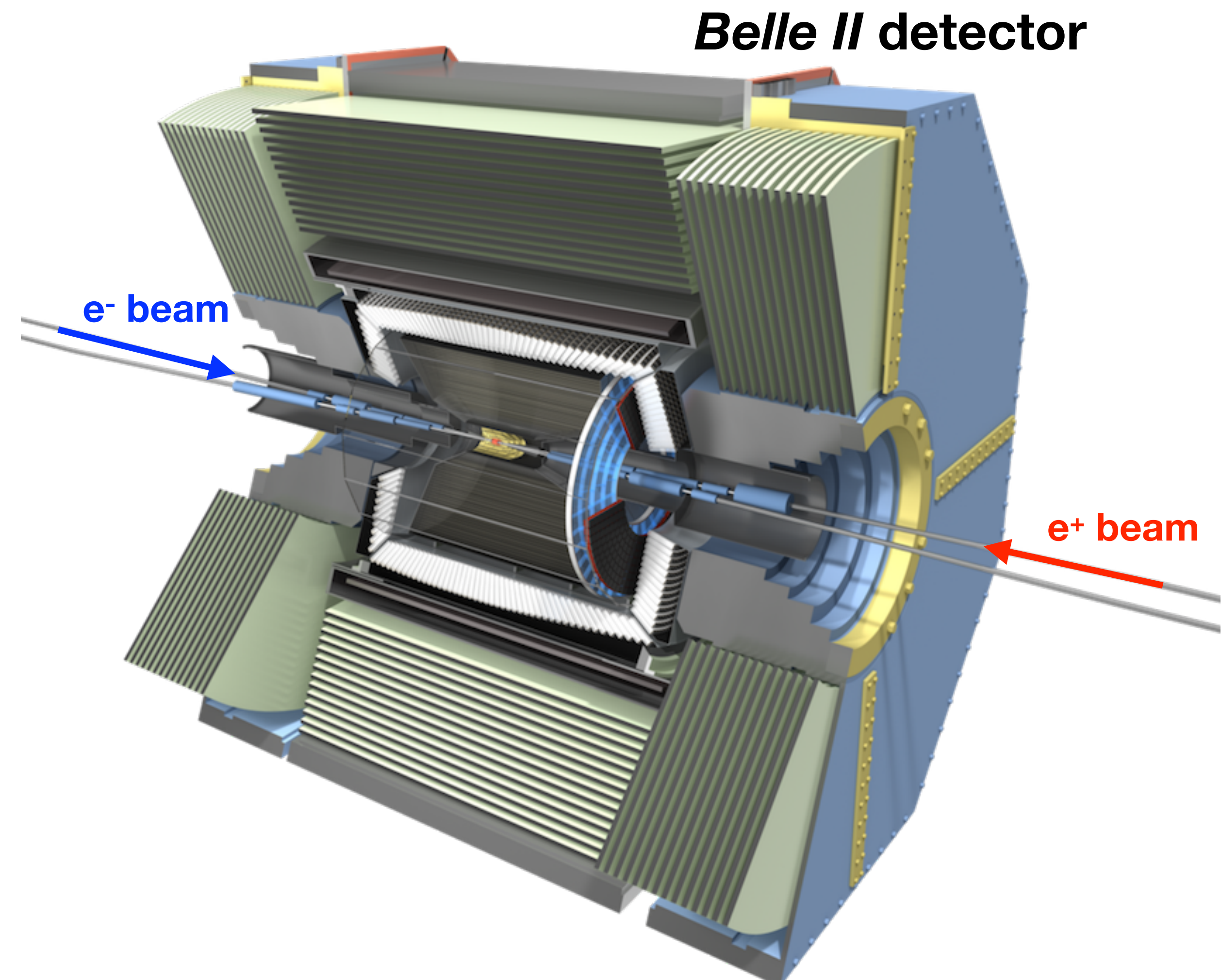
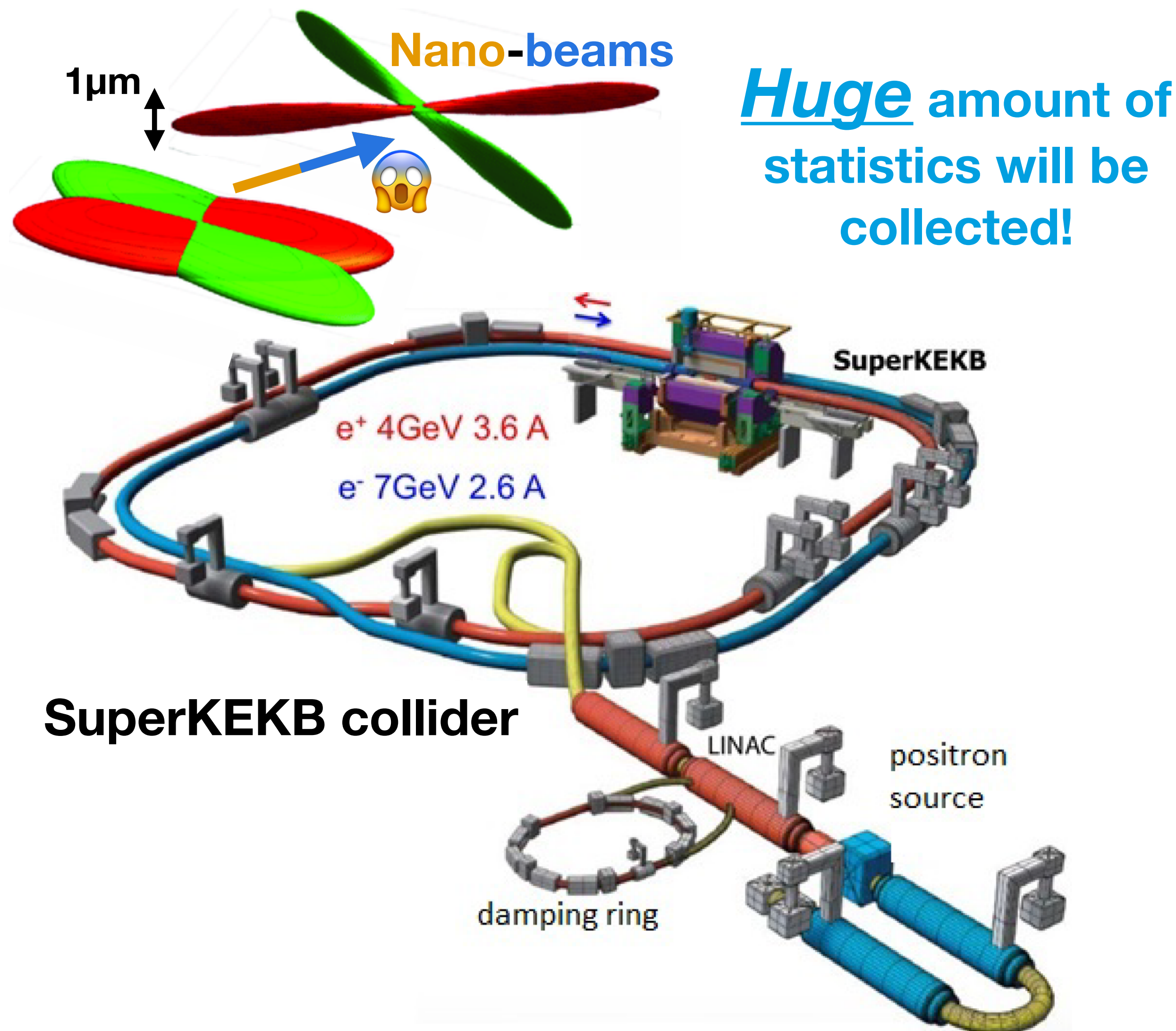
electron and positron beams collide at a specific Center of Mass energy





# The experiment

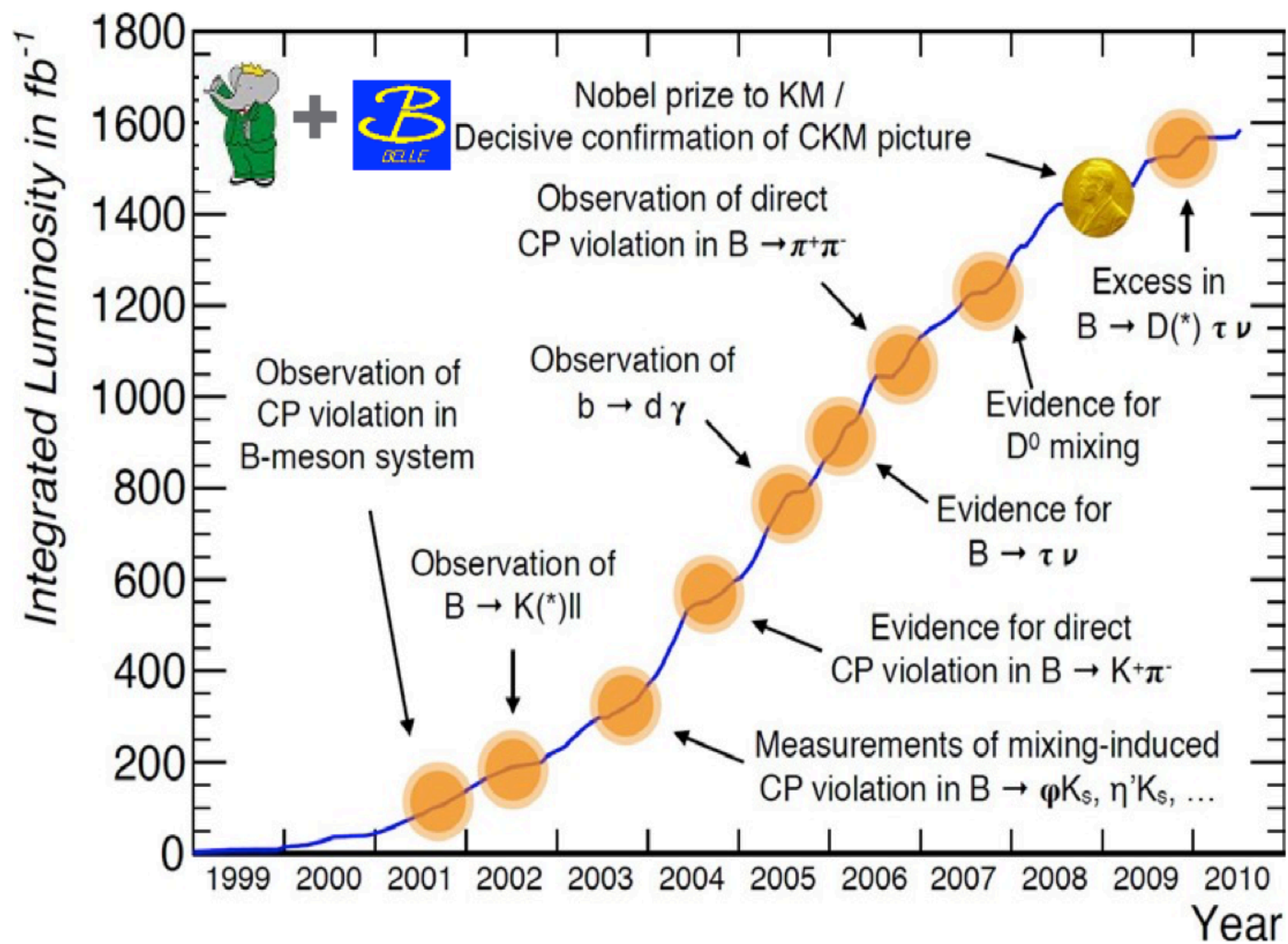
electron and positron beams collide at a specific Center of Mass energy





# Belle II expectations

In next years *Belle II* will collect **~40x more data** than previous experiments

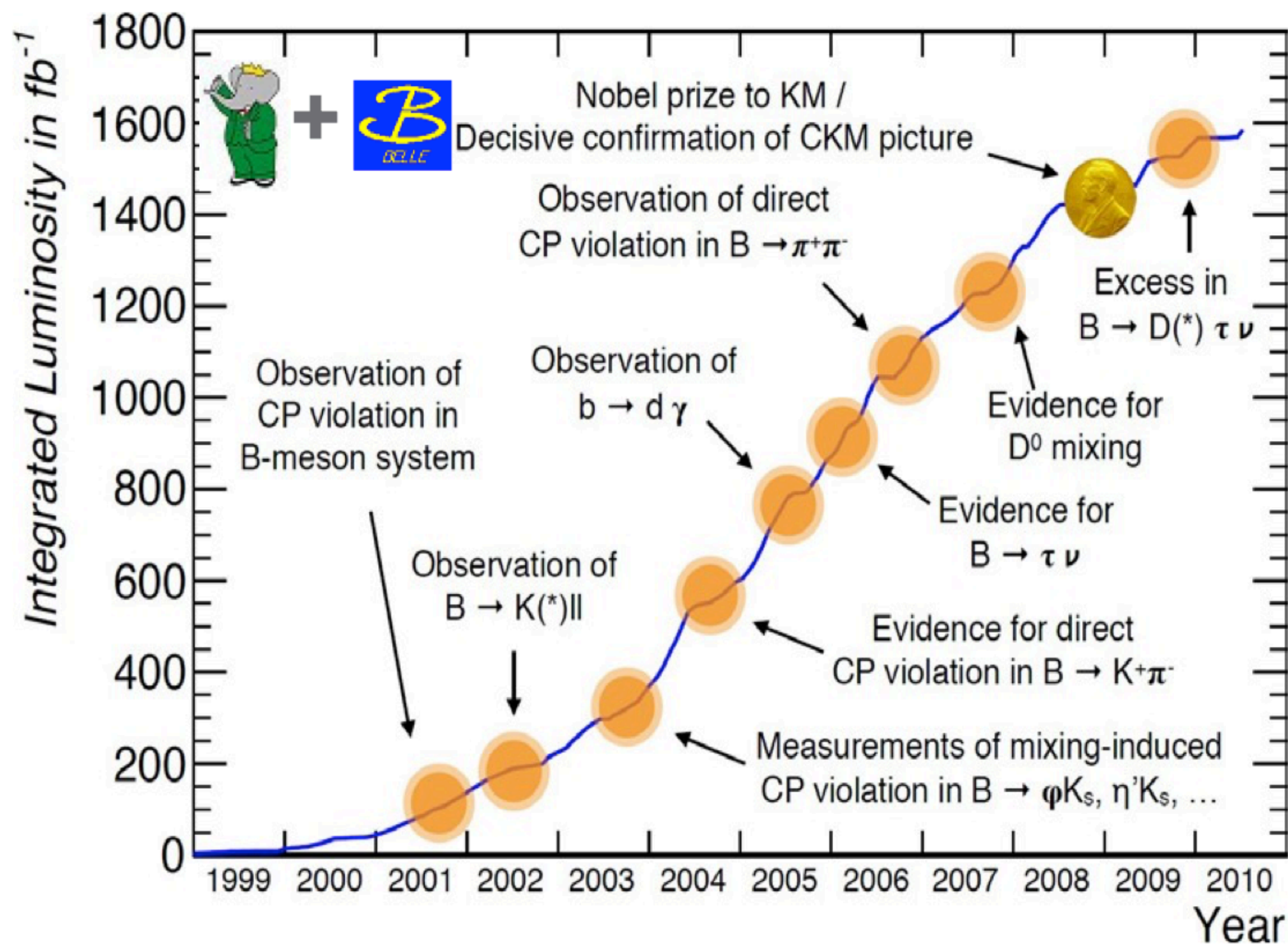




# Belle II expectations

Belle II is collecting data since 2018 → working on providing world leading results with high precision measurements!

In next years *Belle II* will collect **~40x more data** than previous experiments

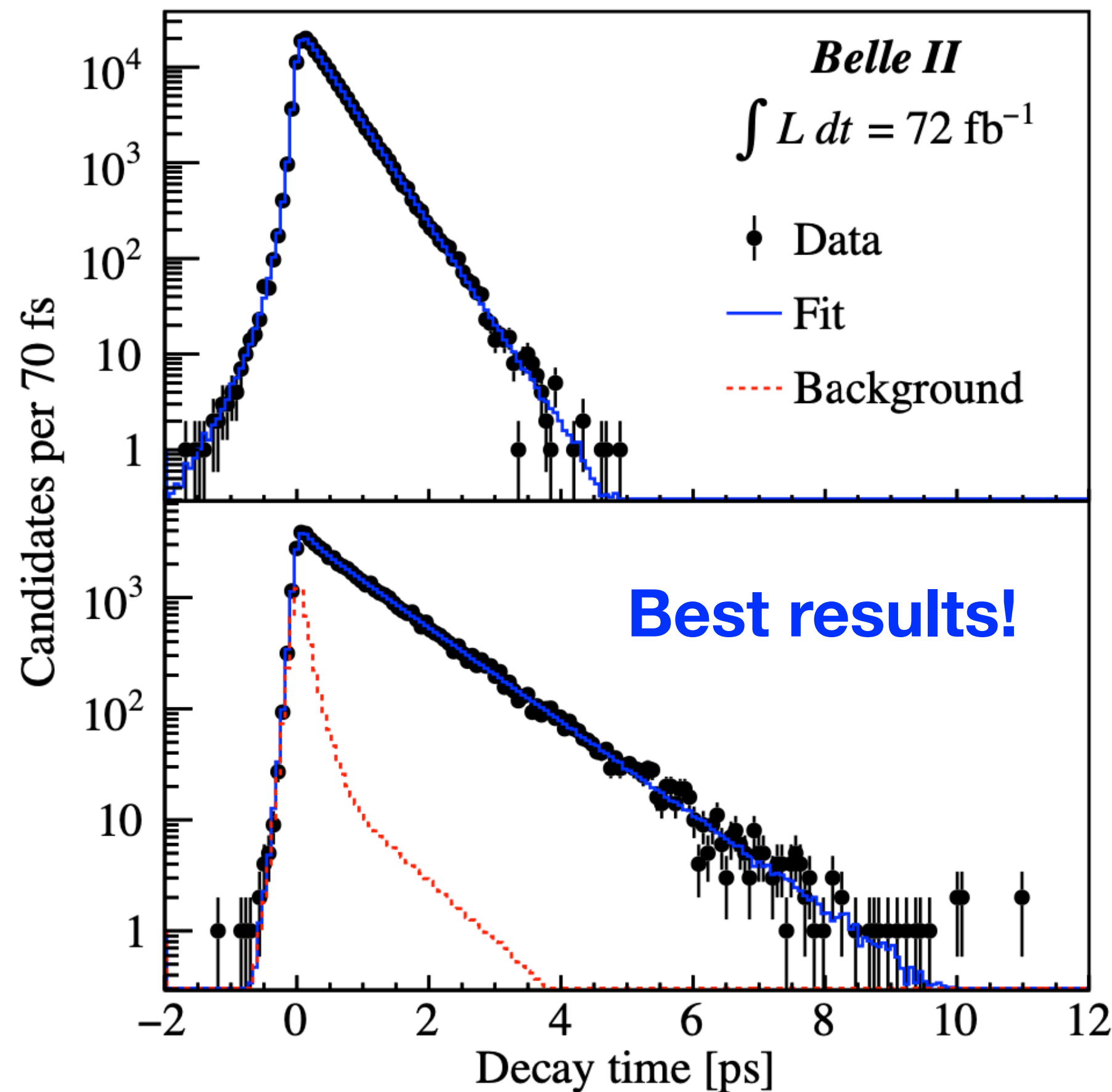
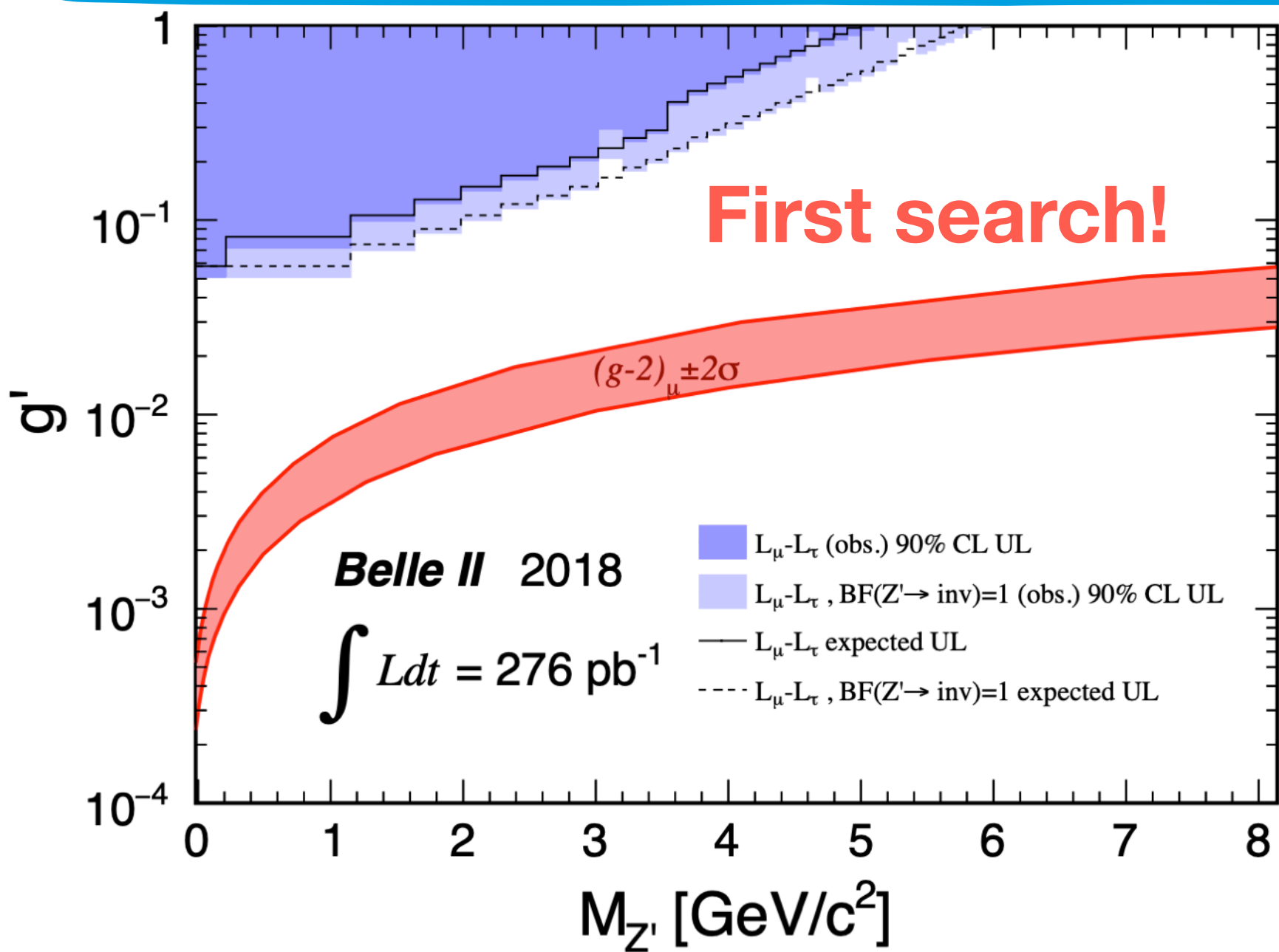


🔥 Exciting times ahead of us! 🔥



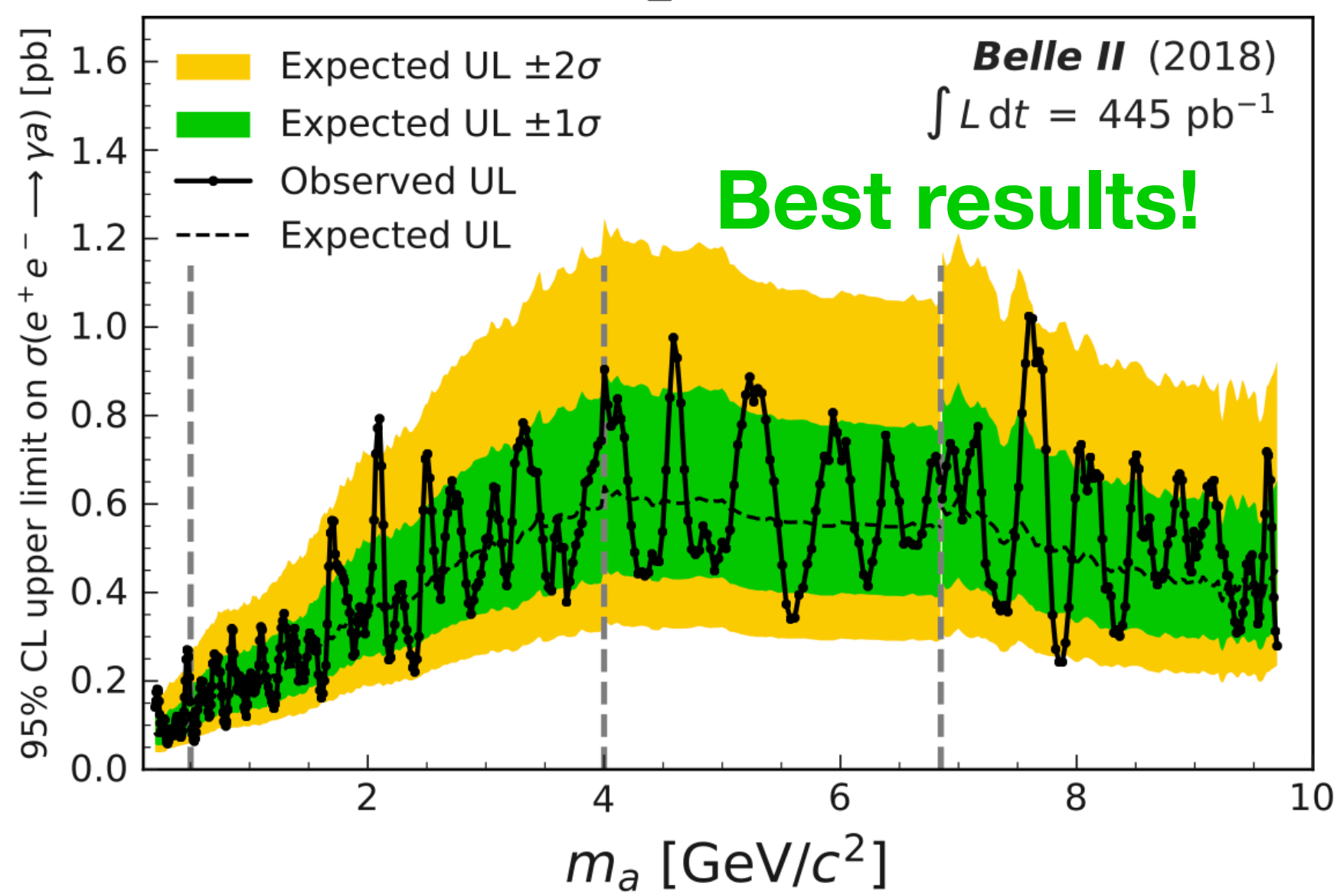


# ...we already started!



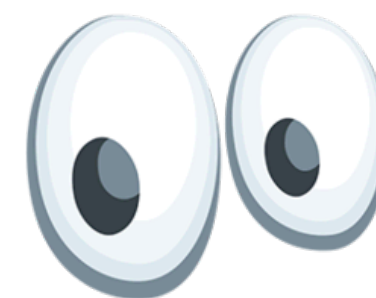
many more to come! 🏆  
 See our [public page](#)

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 for the *Belle II* DESY group



References:

- Z' search
- ALPs search
- D lifetime



Thank  
 you

