Communicating Dark Matter

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Goals:

Create strategies for the communication of physics topics that are related with searches for dark matter in the LHC.

Produce a series of informative elements about searches for dark matter in the LHC.

Talk about the paper “Vector Boson Fusion Topology and Simplified Models for Dark Matter searches at Colliders”.

Socialize the informative elements in places like high schools, colleges, and interactive museums.

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Target Audience and Strategy

The target audience are people over 12 years old.

We made a series of infographics about:

- Standard Model.
- Dark Matter.
- Particle Accelerators.
- Searches for Dark Matter in Particle Accelerators.

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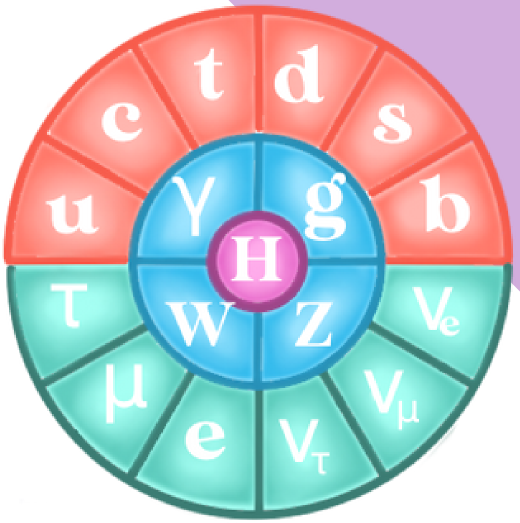
What are we made of?

To know about simplified models, particle collisions and particle accelerators we must first know about particle physics.

In this infographic we talk about:

- **Fundamental particles and fundamental forces.**
- **The gravity problem.**
- **Higgs Boson.**
- **Physics beyond the standard model.**



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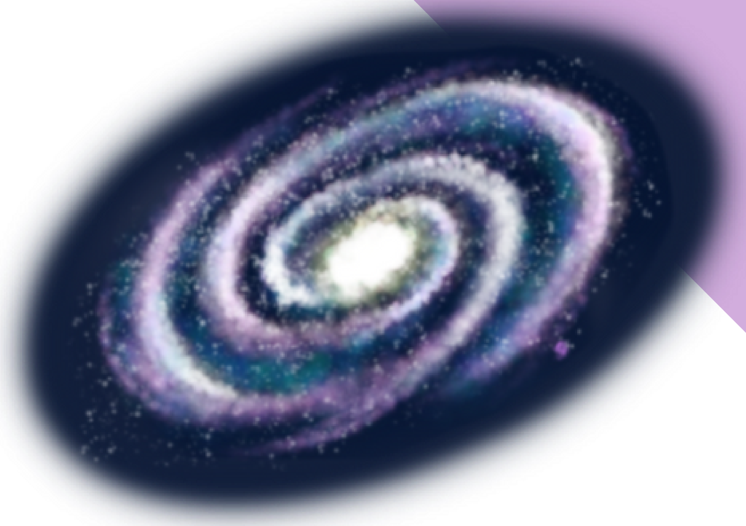
Dark Matter

In this infographic we explore the generalities of dark matter. We talk about:

- **DM abundance in universe.**
- **How it was discovered.**
- **DM characteristics.**
- **Why is so hard to detect it.**
- **Candidates for DM.**
- **DM detection methods.**



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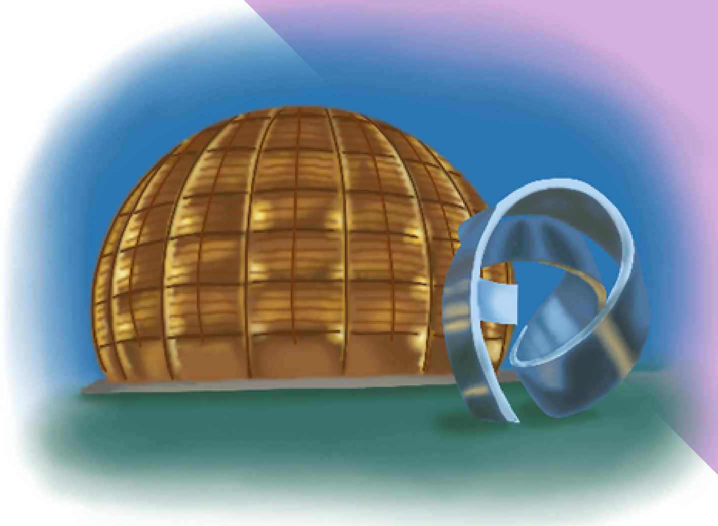
Particle Accelerators

Once we know about standard model and dark matter, we can talk about particle accelerators.



In this infographic we talk about:

- What is a particle accelerator?
- Its uses in industry and research.
- CERN
- LHC, its functions, characteristics and experiments
- CMS, its parts, functions and purposes.

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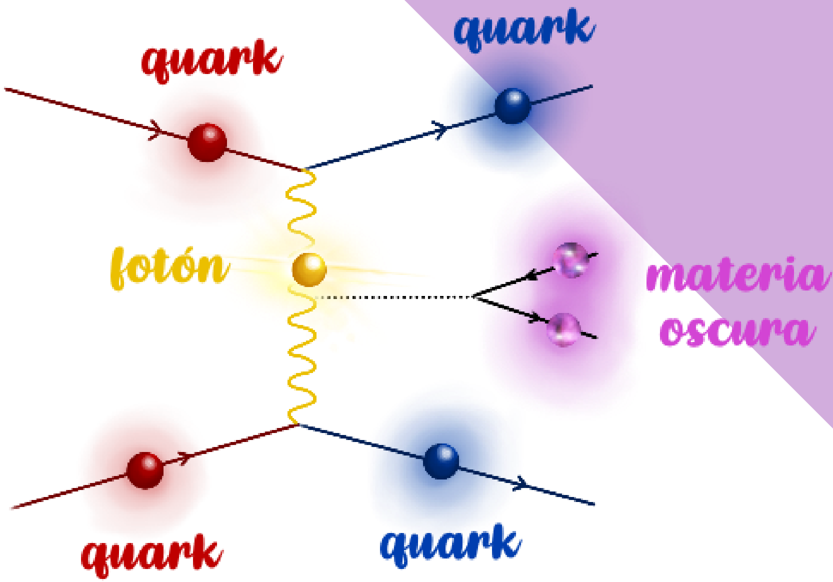
Dark Matter and Particle Accelerators

Now we're ready to talk about the paper.

In this infographic we talk about:

- Searches for DM in the LHC.
- Theoretical models and Simplified Models.
- VBF.
- Computational simulations.
- Signal and background.
- Results.



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- Duque-Escobar, S., Ocampo-Henao, D., & Ruiz-Álvarez, J. D. (2021). Vector boson fusion topology and simplified models for dark matter searches at colliders. arXiv preprint arXiv:2111.13082.
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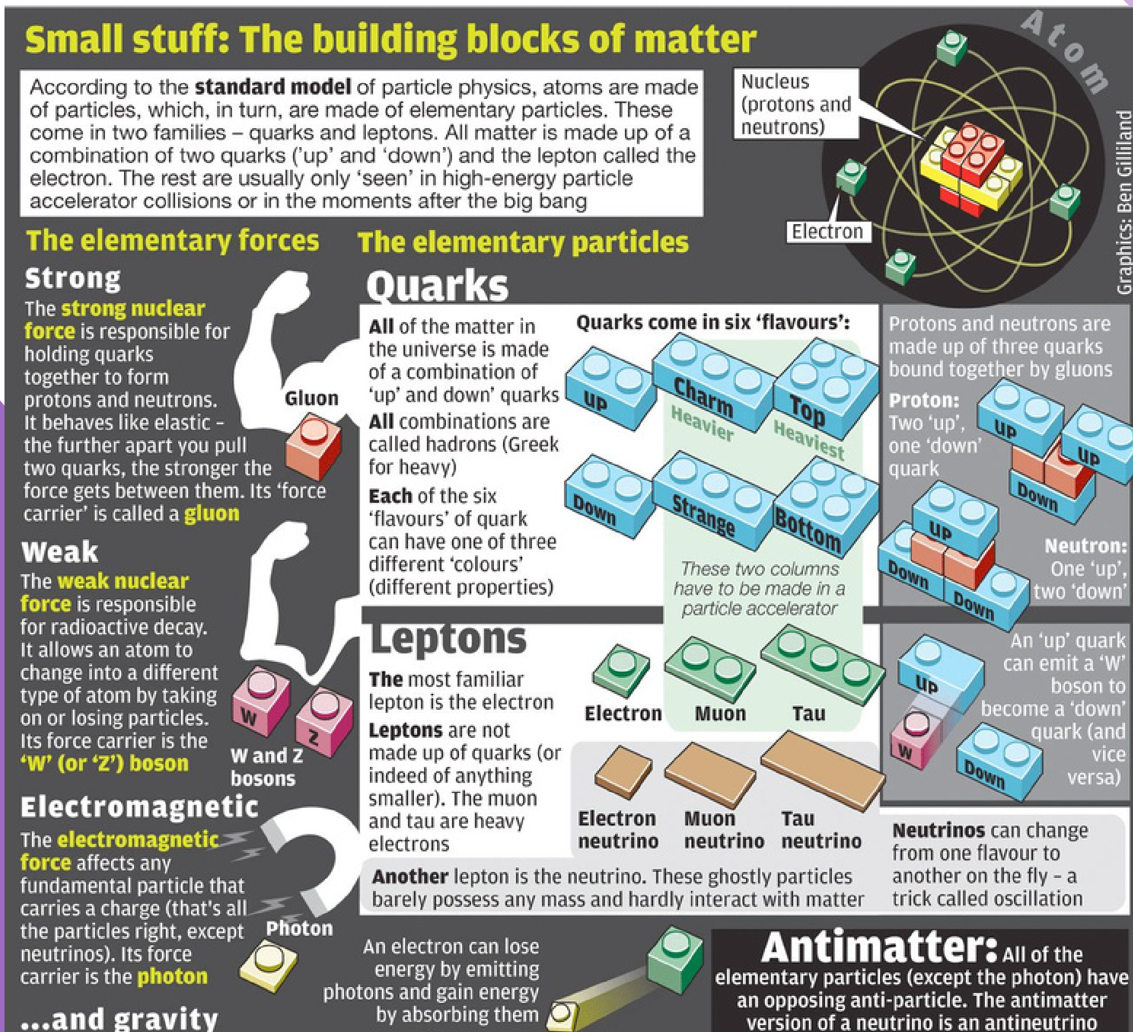
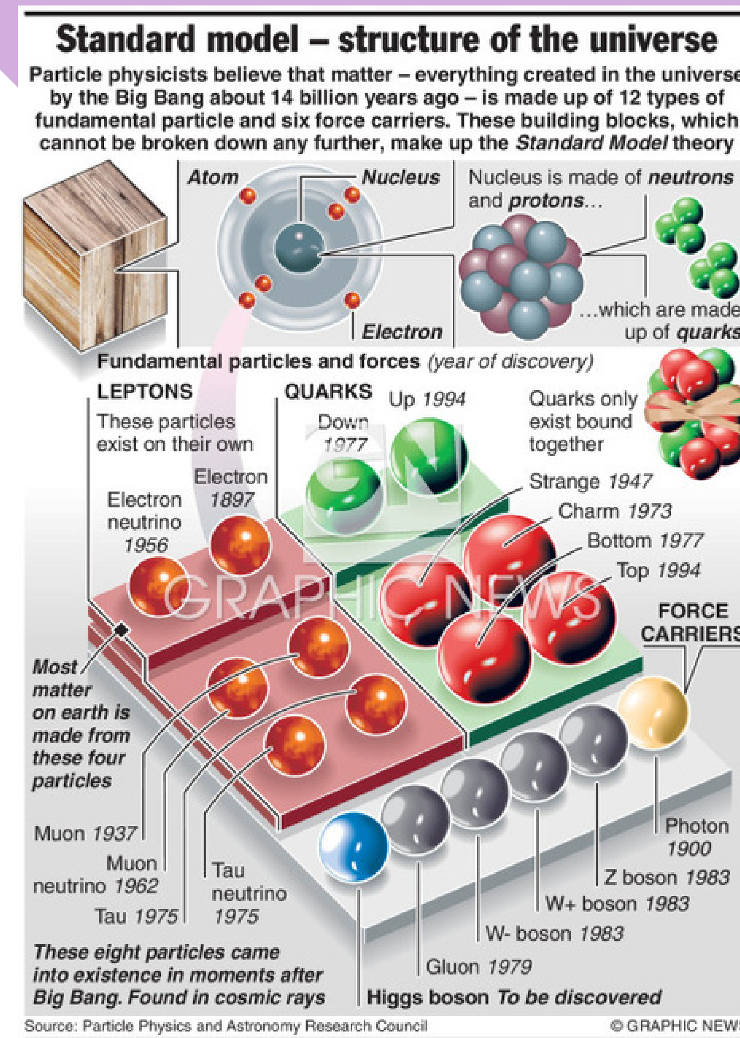
References





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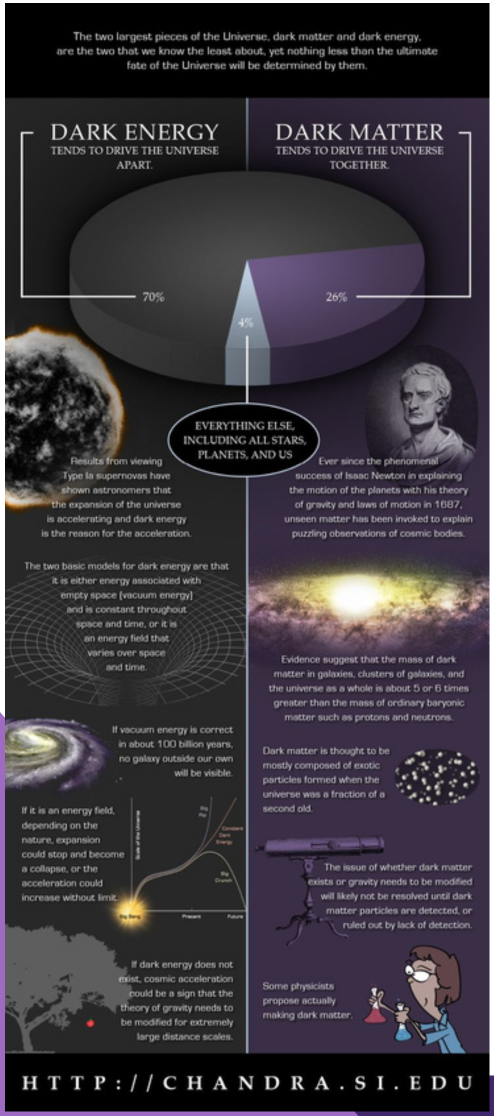

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Thank you.

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