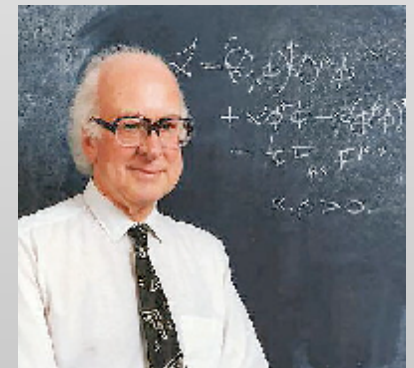
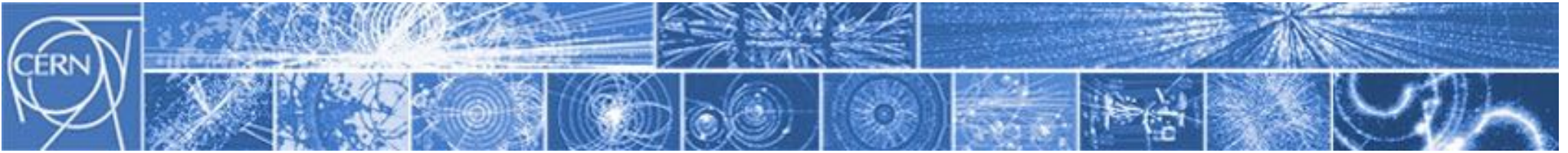


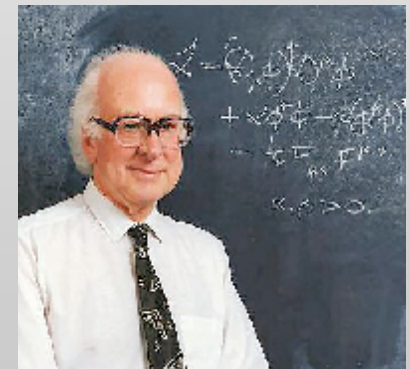
Il bosone di Higgs

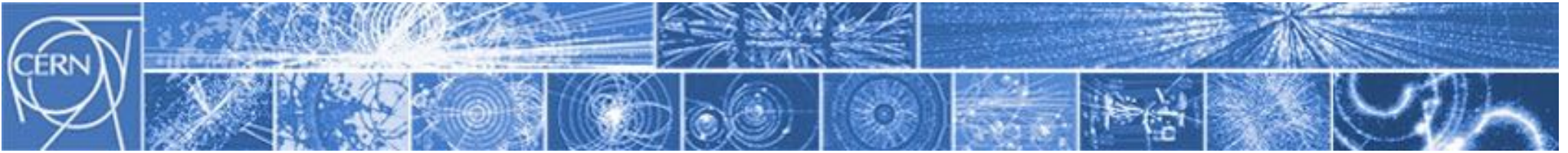




Il bosone di ~~Higgs~~

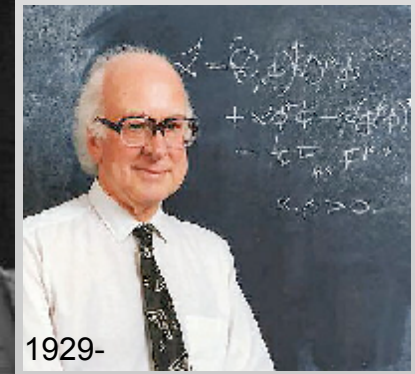
Englert-Brout-Higgs-Guralnik-Hagen-Kibble

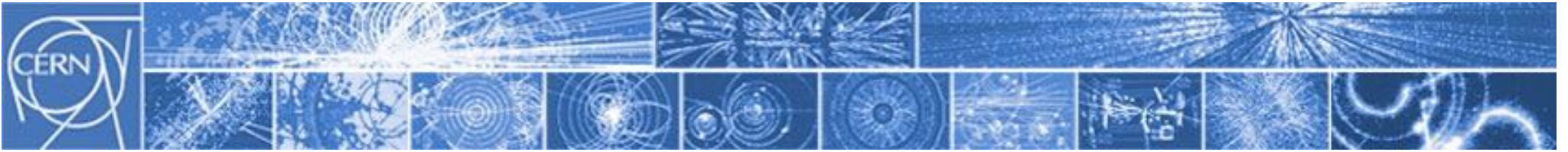




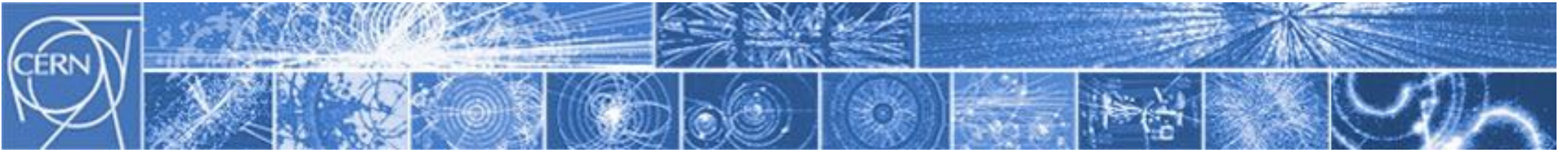
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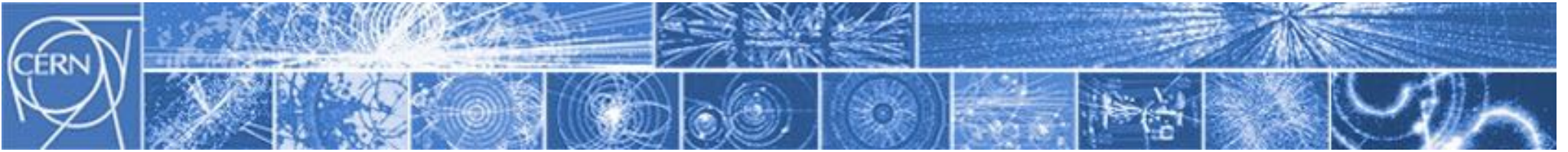


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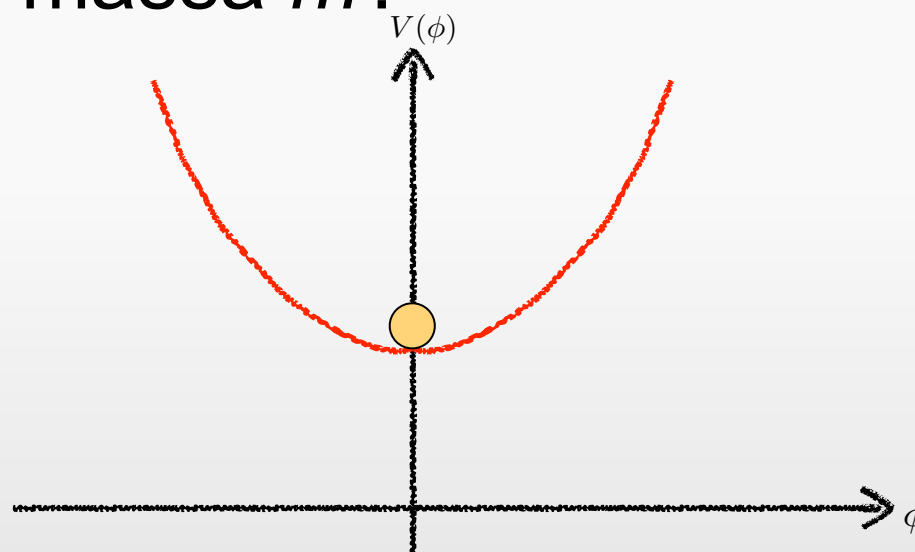
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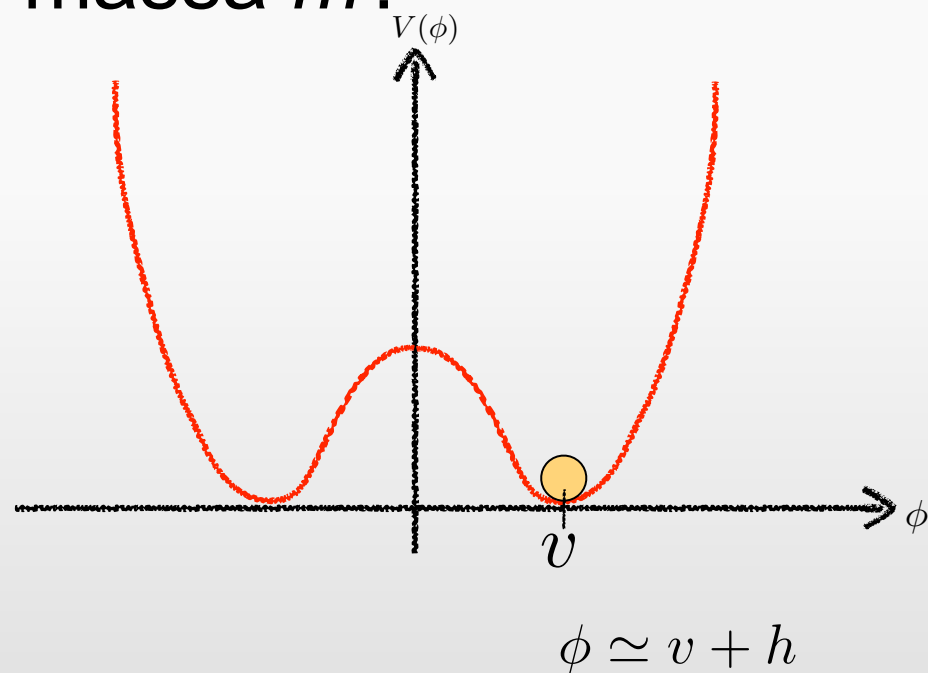
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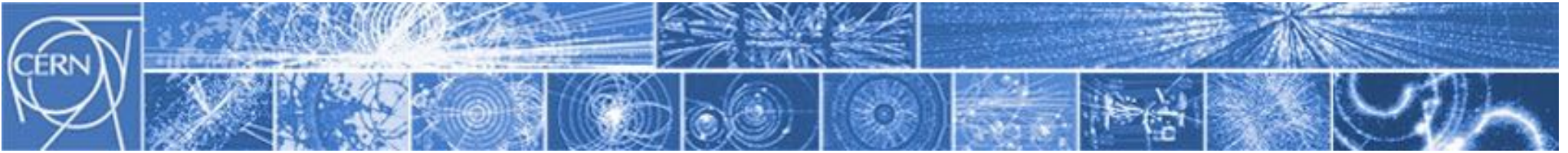




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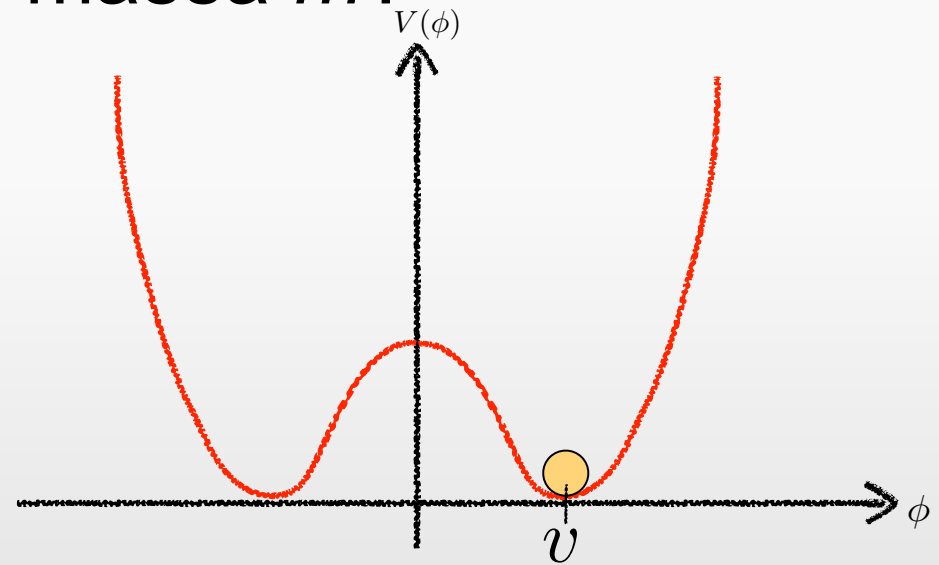
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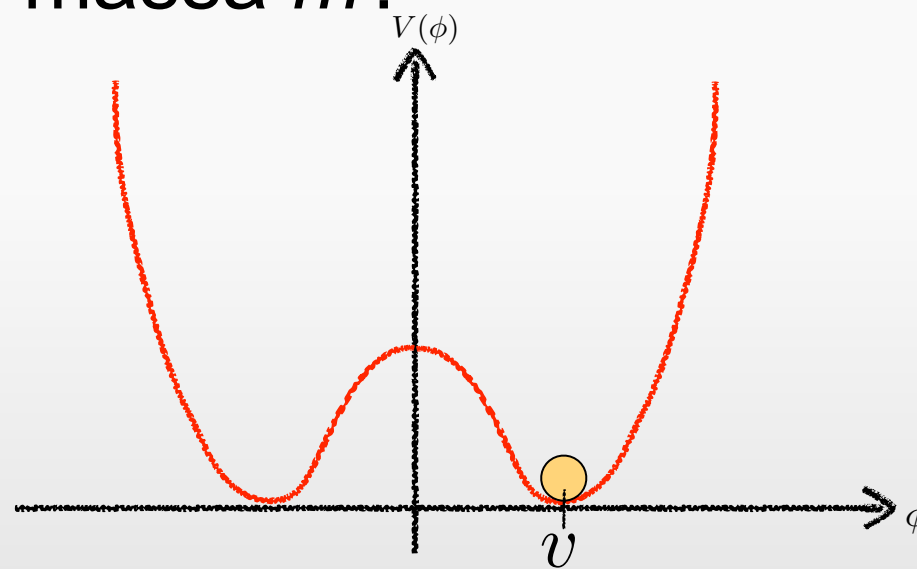


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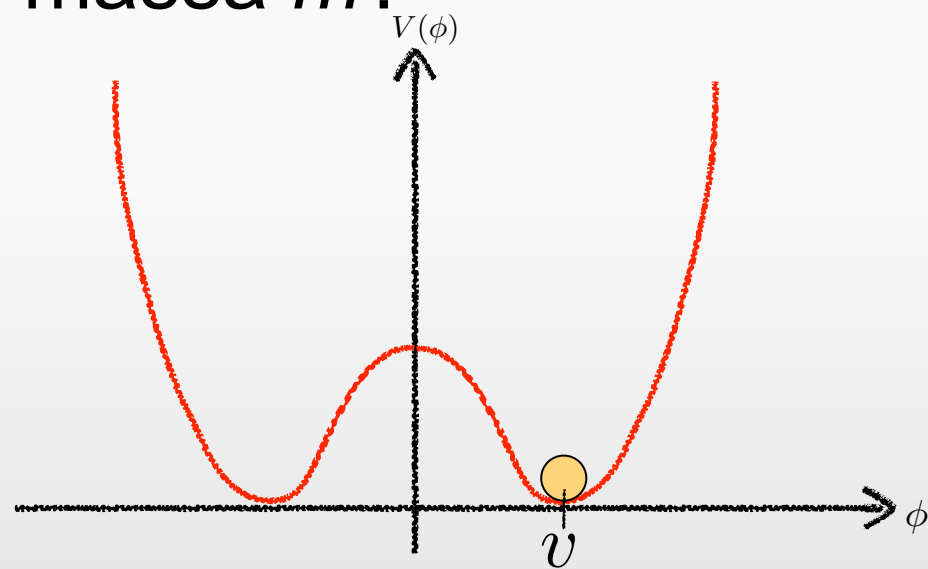
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A Feynman diagram illustrating the production of a Higgs boson (h) from two muons (μ). Two blue lines labeled μ enter from the left and meet at a vertex. A dashed line labeled h exits to the right.



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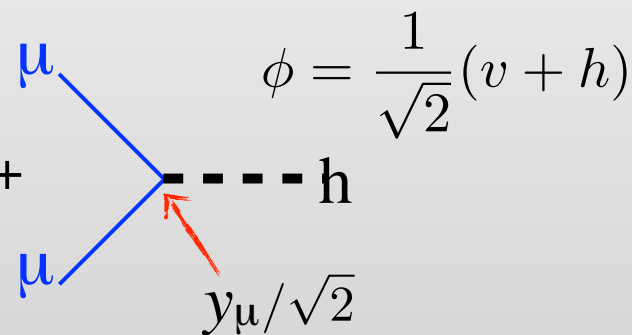
$$y_{ij}\Psi_i\Psi_j \frac{1}{\sqrt{2}}(v+h)$$

$$\frac{y_\mu v}{\sqrt{2}} \mu\mu$$

\downarrow
 m_μ

$$+ \frac{y_\mu}{\sqrt{2}} \mu\mu h$$

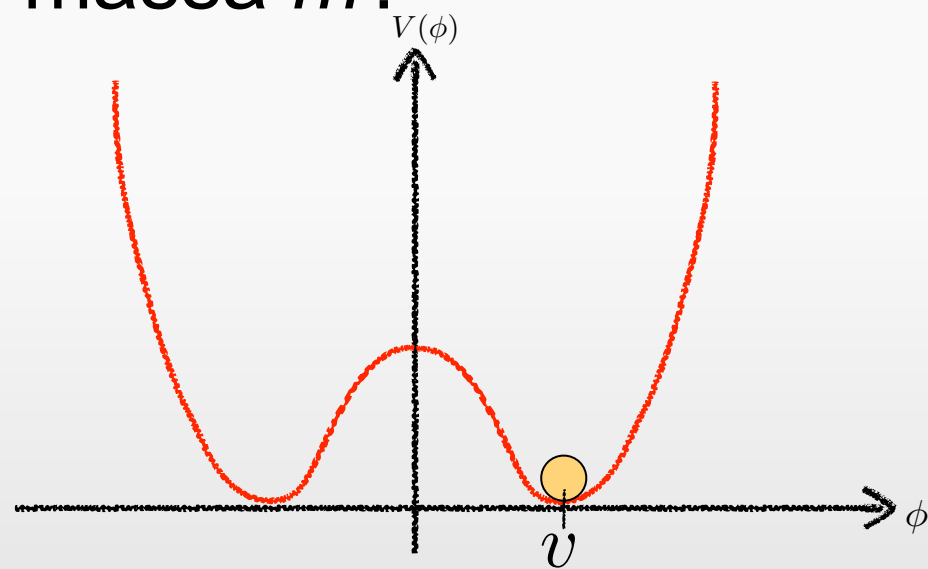
$$= \frac{\mu}{\mu} +$$





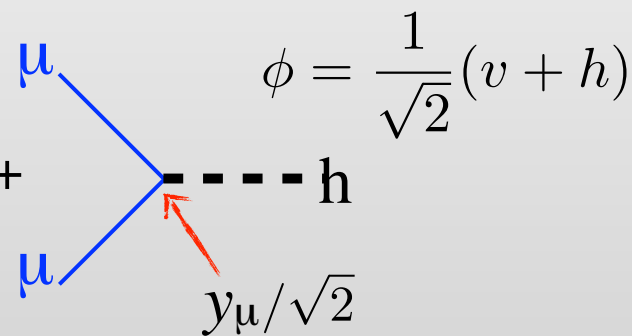
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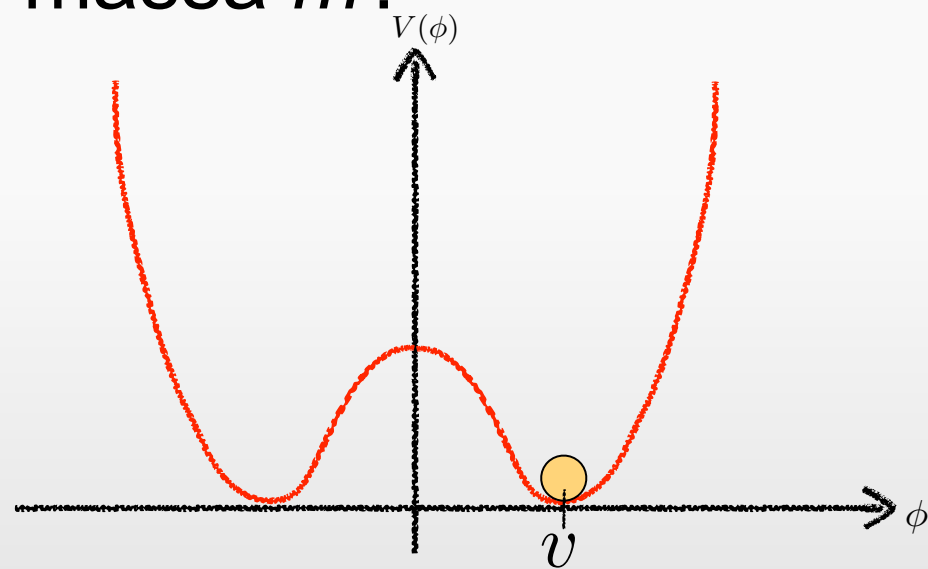


$$|D_\mu\phi|^2 \rightsquigarrow \frac{g v}{2}W^+W^-$$



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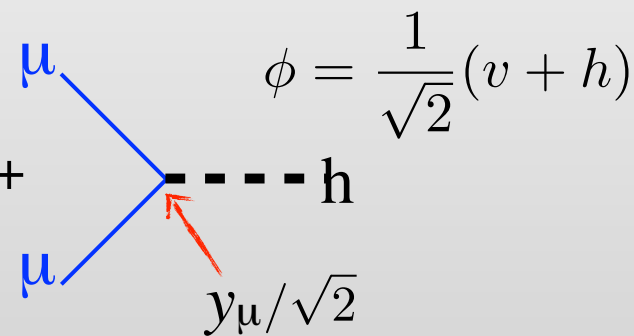


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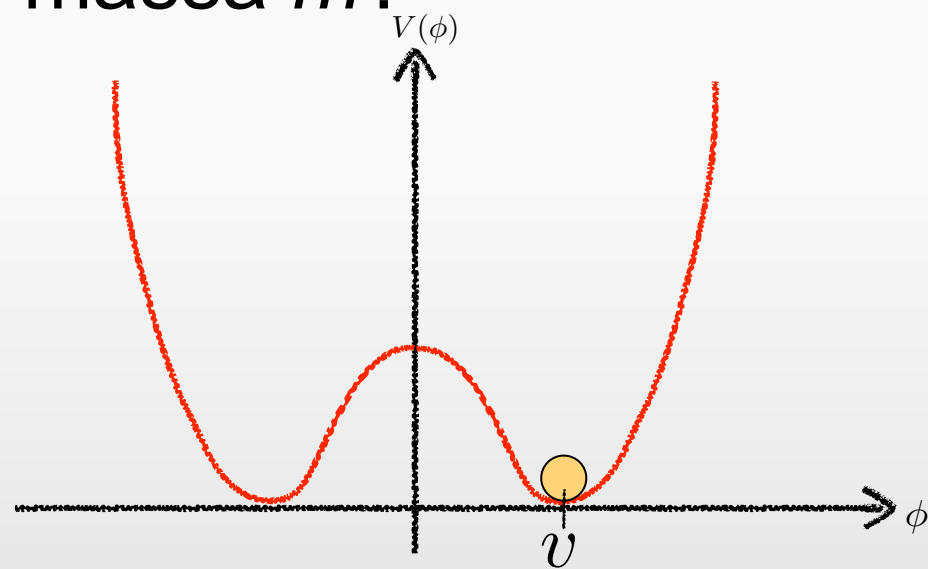


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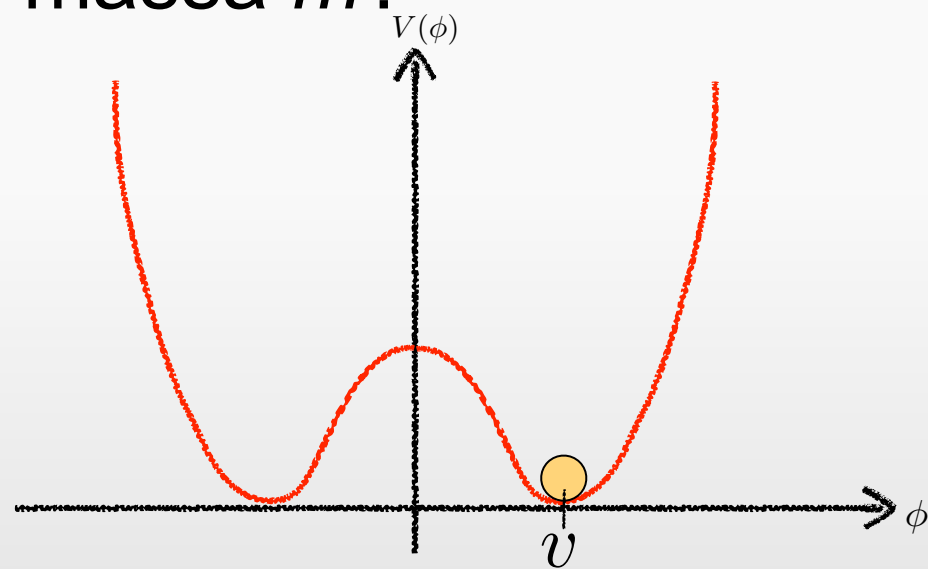
$y_\mu/\sqrt{2}$

$$|D_\mu\phi|^2 \rightsquigarrow \frac{g v}{2} W^+ W^- \quad V(\phi) \rightsquigarrow \frac{1}{2}(2\lambda v^2) h h$$



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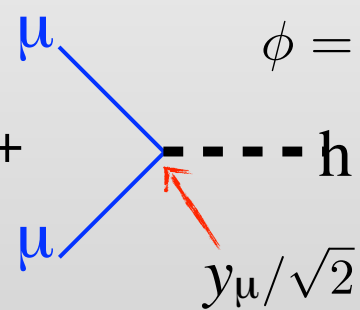
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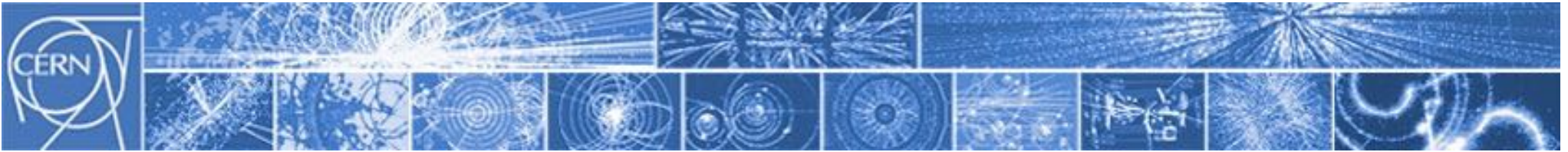
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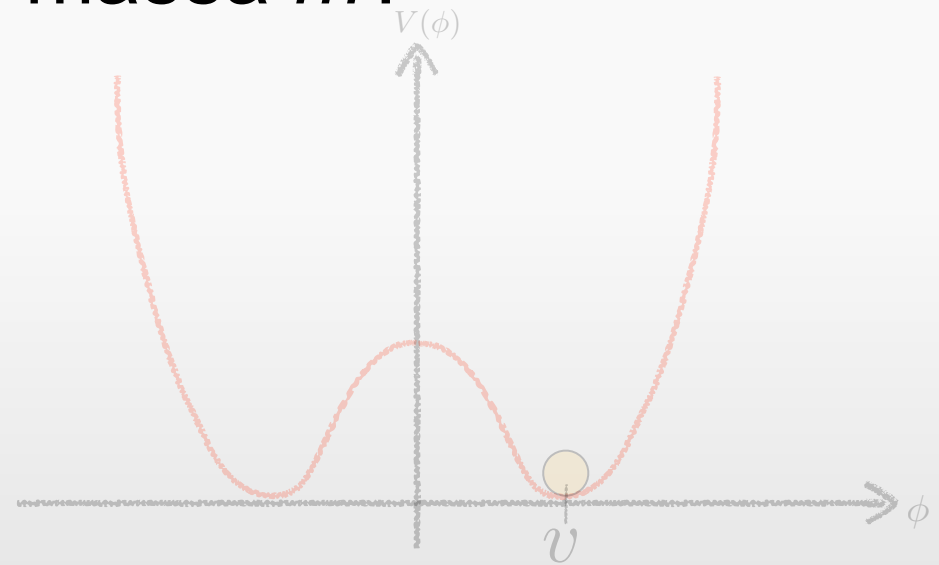
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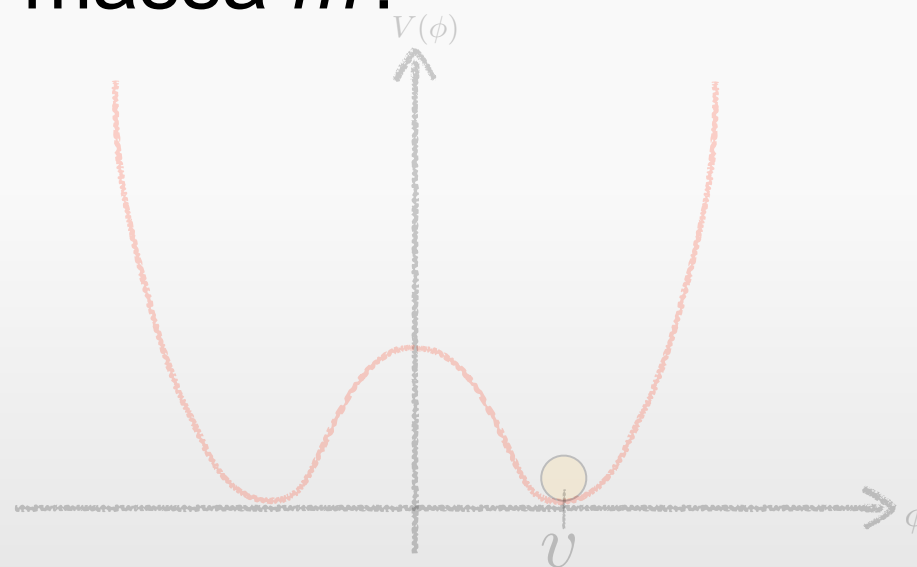
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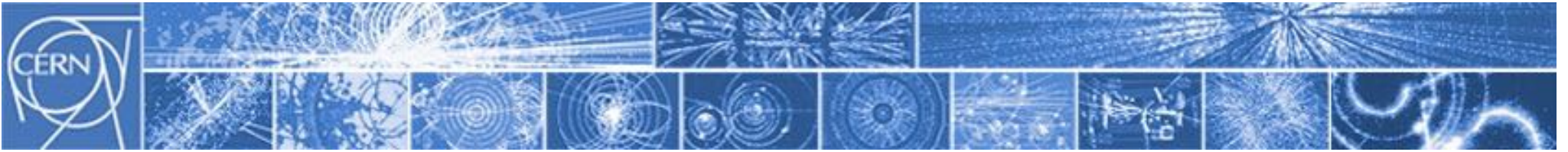


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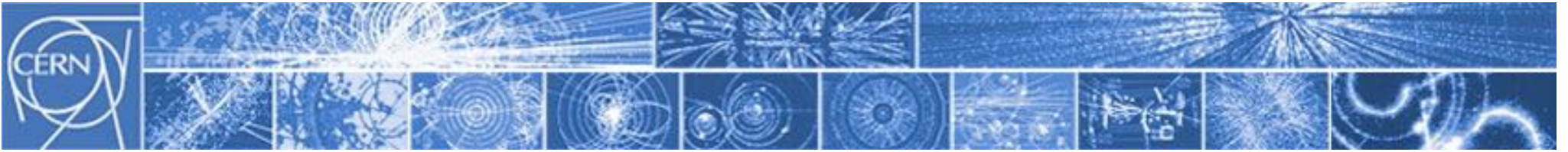
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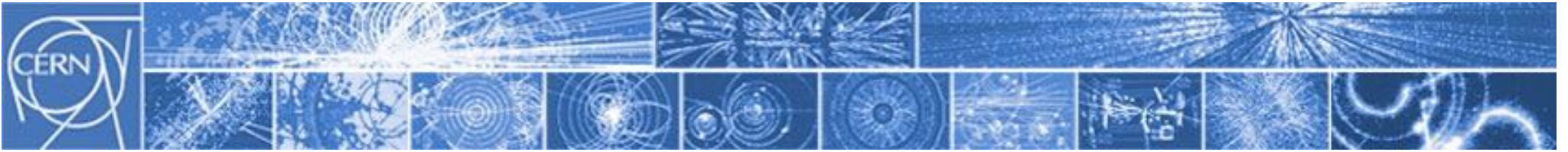
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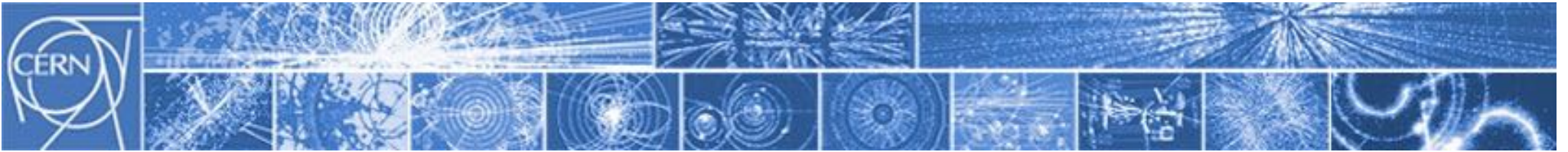
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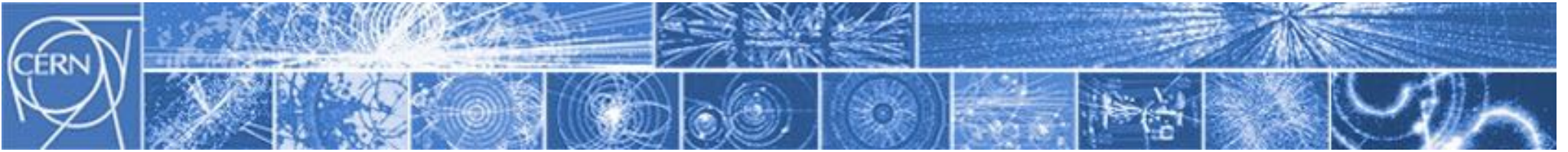
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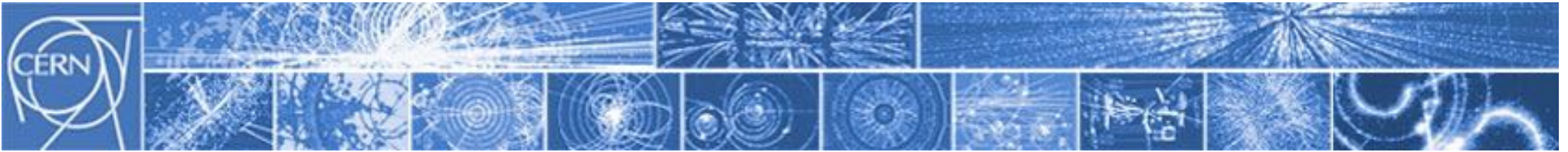
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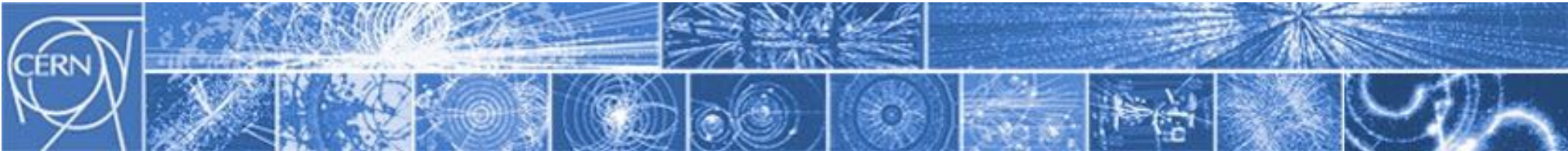
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rottura esplicita della simmetria di gauge



Q. Derive the Lagrangian for the Standard Model

$$\mathcal{L} = \bar{\psi} (i \not{D} - m) \psi - \frac{1}{4} F_{\mu\nu}^2 - \partial_\nu W_\mu$$

W

$$F_{\mu\nu}^2$$

$$i\bar{\Psi} \not{D} \Psi$$

$$E_s$$

$$+ M$$

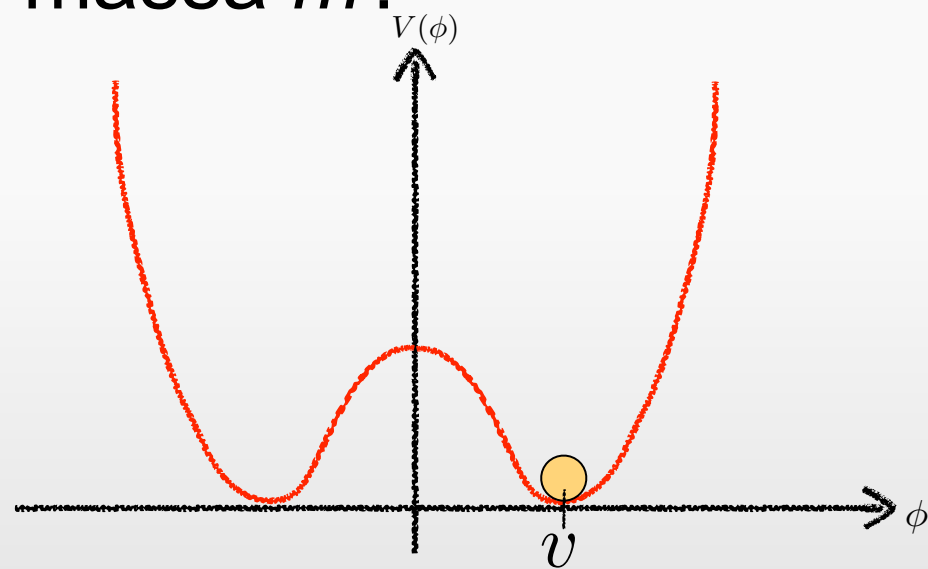


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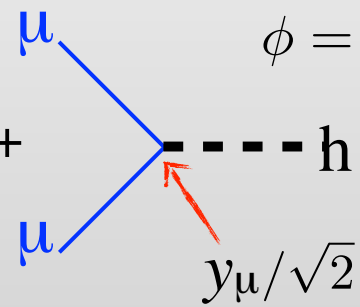
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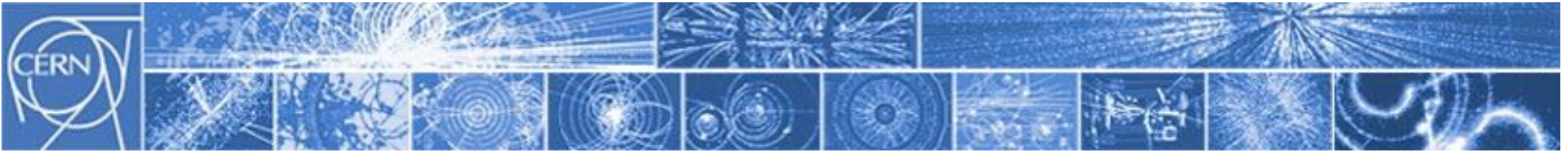
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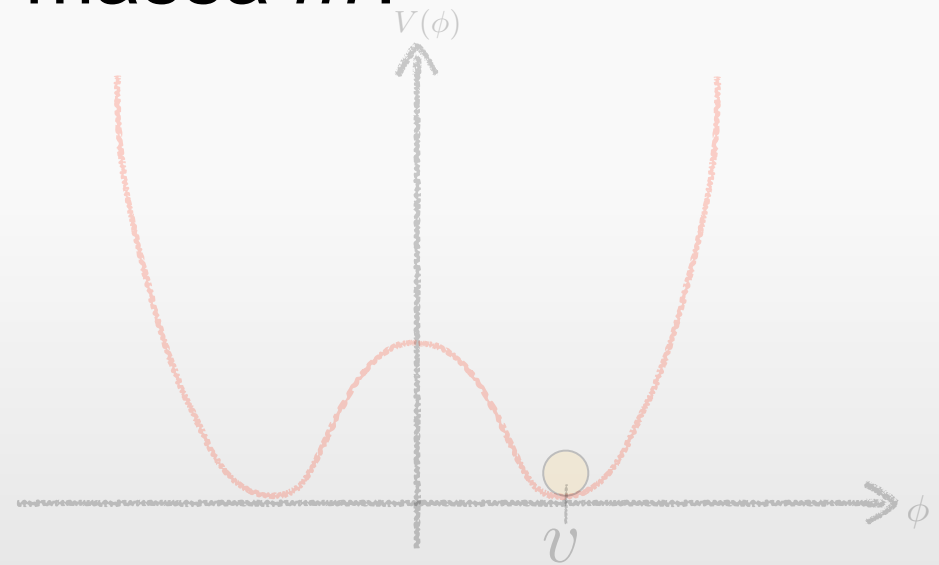
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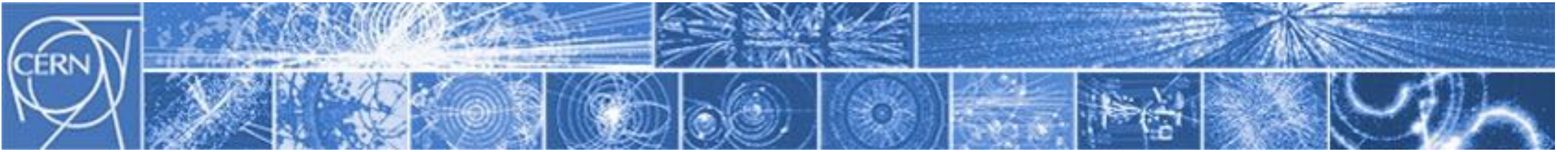


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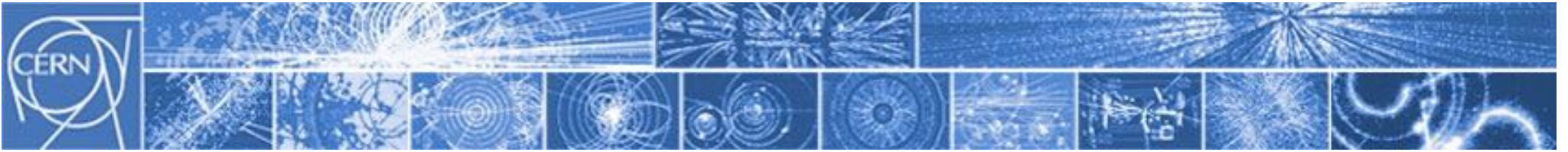
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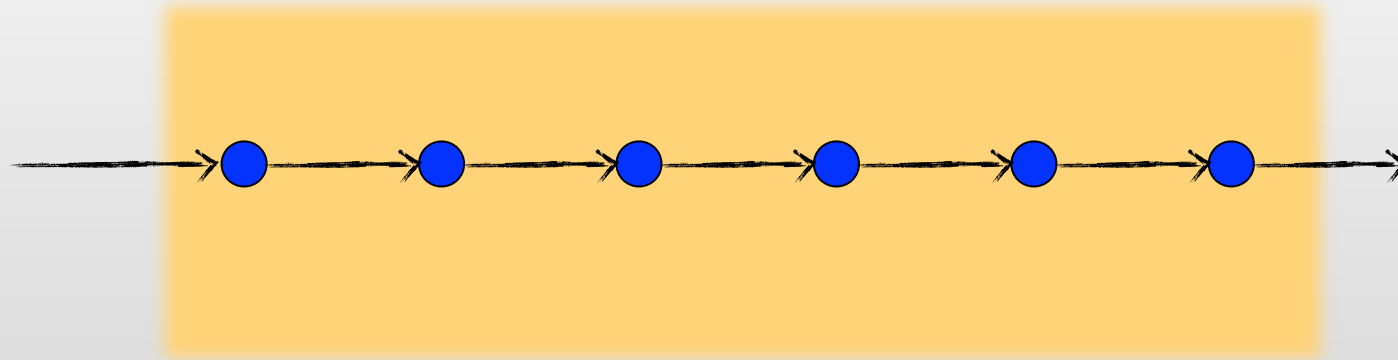
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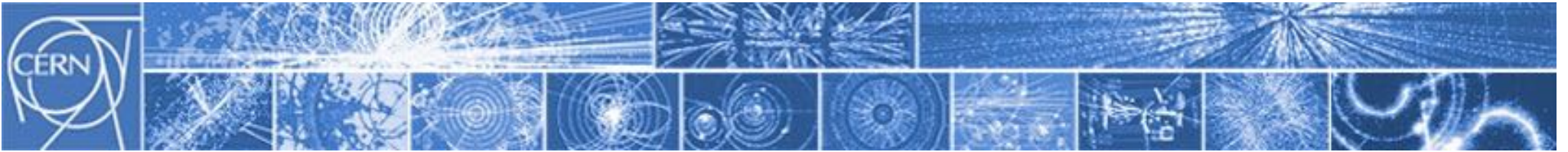


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Il *campo di higgs* è un mezzo continuo che permea l'universo.
Le particelle, interagendo col campo, acquistano un'inerzia/massa.

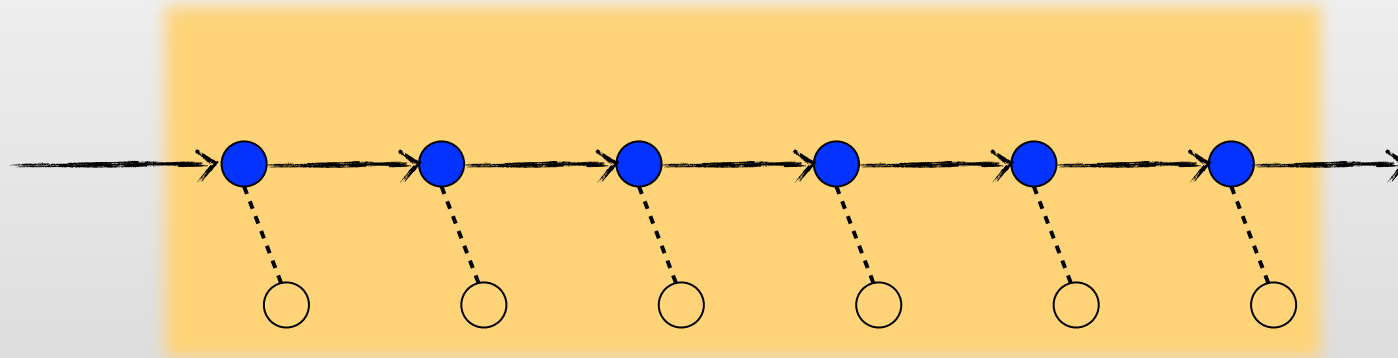


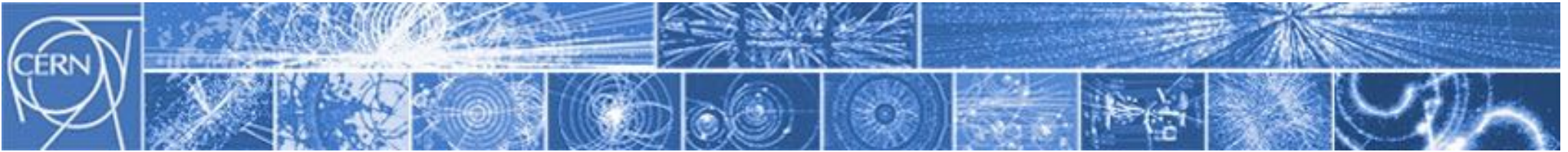


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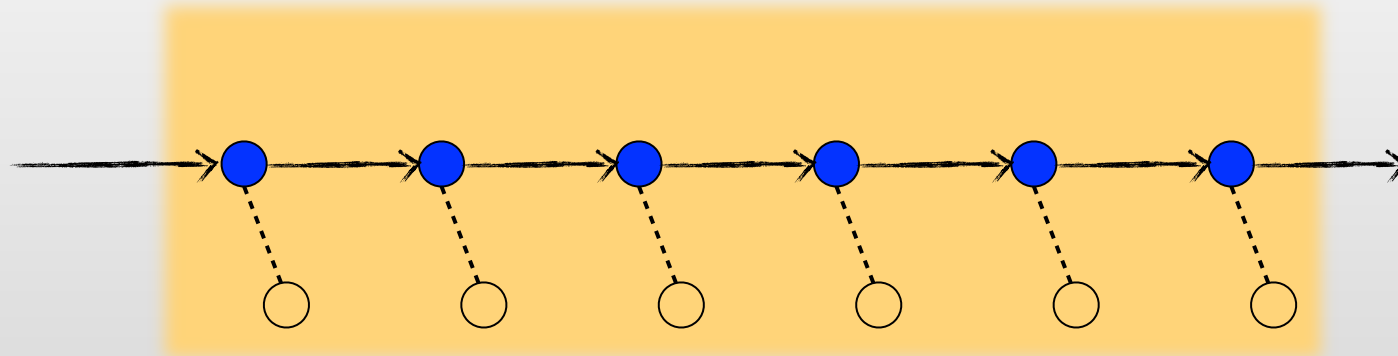




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Le particelle, interagendo col campo, acquistano un'inerzia/massa.



Le 'onde' del *campo* di Higgs sono una *particella*:
la particella di Higgs (bosone).

Equation (2b) describes waves whose quanta have
(bare) mass $2\phi_0\{V''(\phi_0^2)\}^{1/2}$

VOLUME 13, NUMBER 9

PHYSICAL REVIEW LETTERS

31 AUGUST 1964

BROKEN SYMMETRY AND THE MASS OF GAUGE VECTOR MESONS*

F. Englert and R. Brout

Faculté des Sciences, Université Libre de Bruxelles, Bruxelles, Belgium
(Received 26 June 1964)

VOLUME 13, NUMBER 16

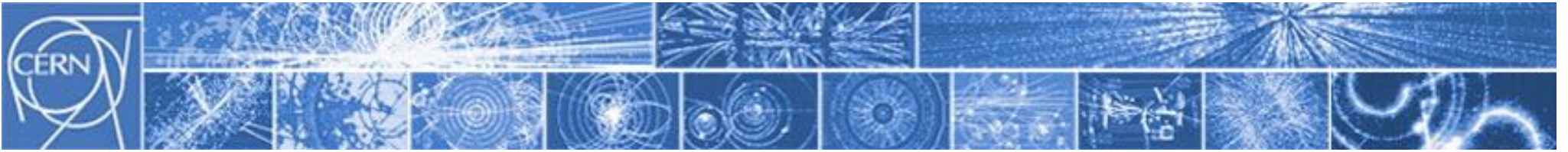
PHYSICAL REVIEW LETTERS

19 OCTOBER 1964

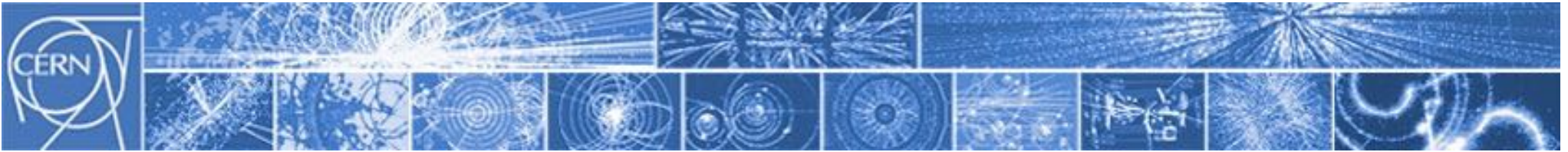
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Peter W. Higgs

Tait Institute of Mathematical Physics, University of Edinburgh, Edinburgh, Scotland
(Received 31 August 1964)

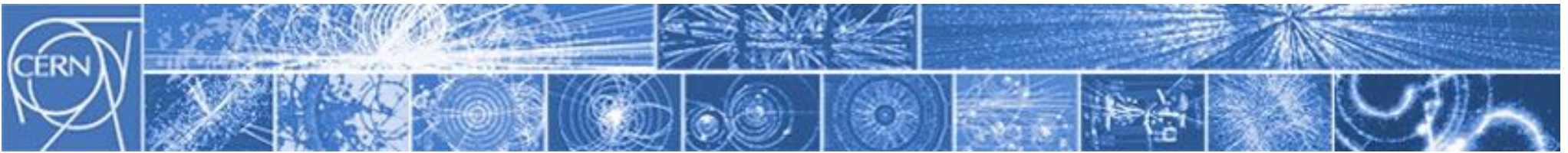


Migliore analogia per il meccanismo e il bosone di higgs?



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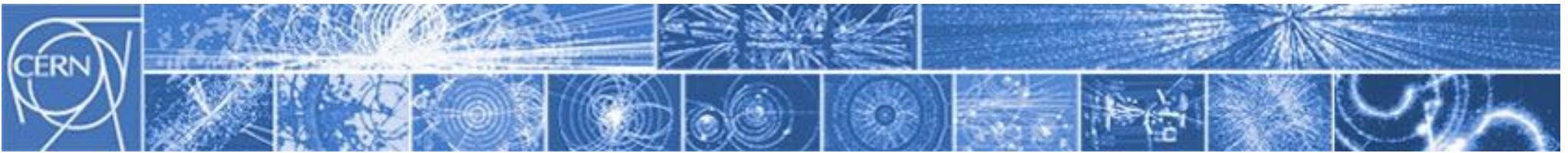
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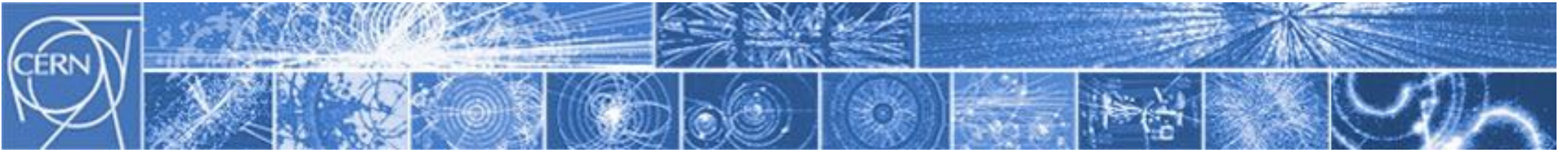


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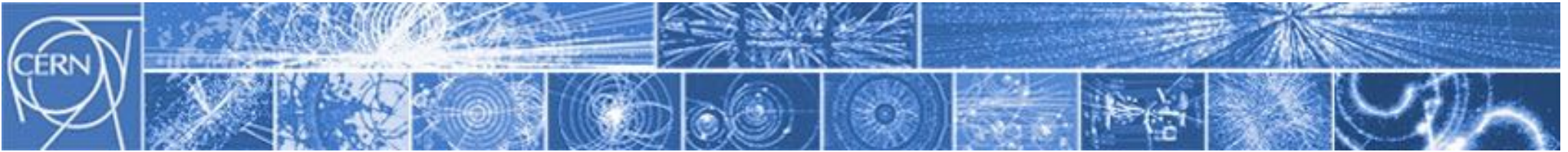
Oltre il Modello Standard



Problemi aperti in Fisica delle Particelle

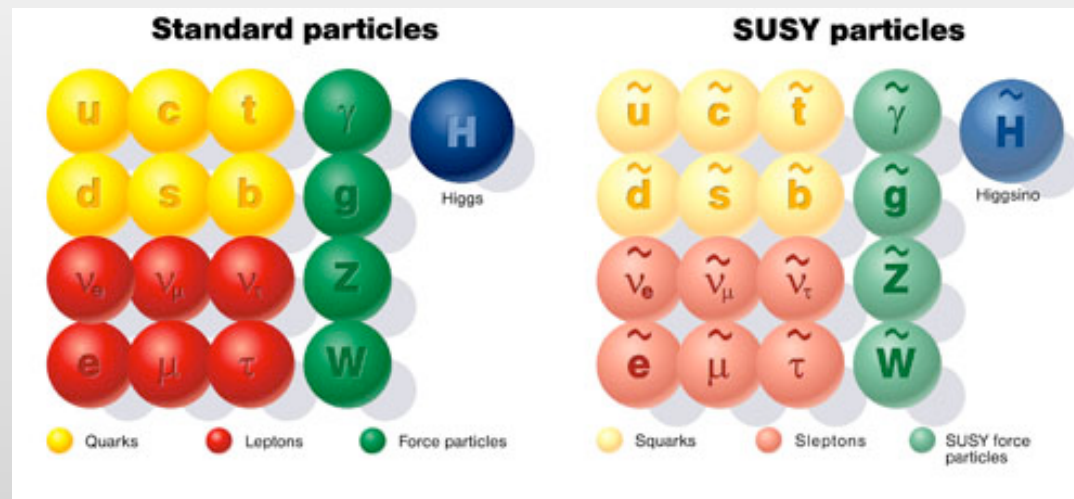
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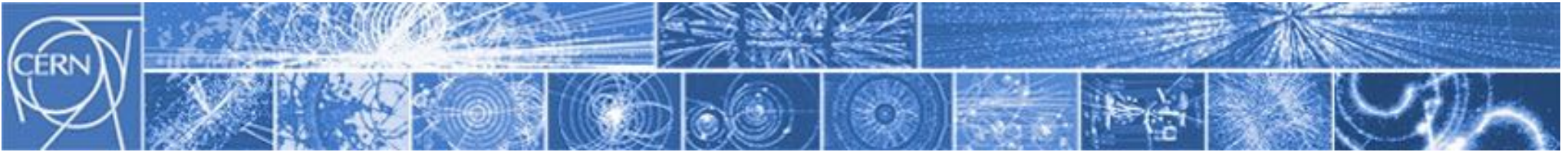




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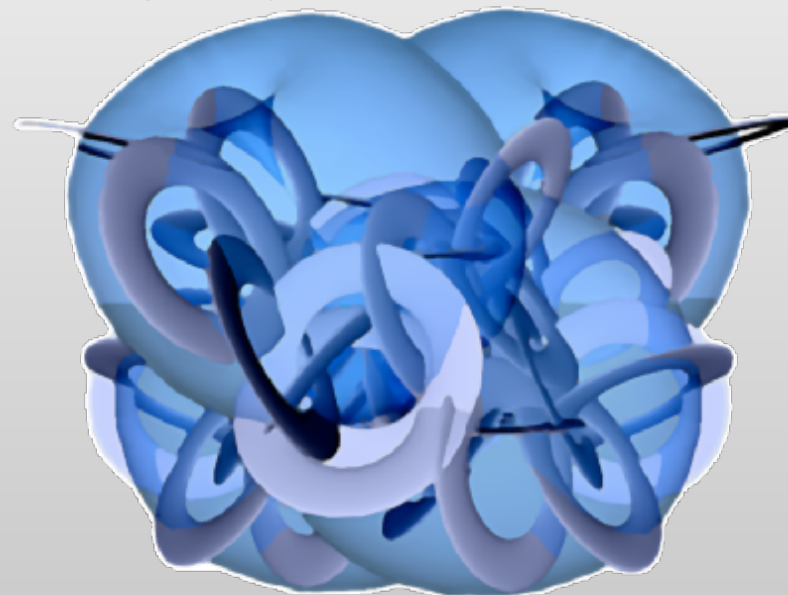
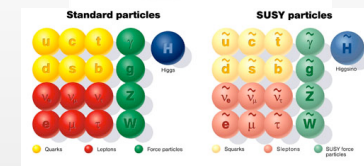
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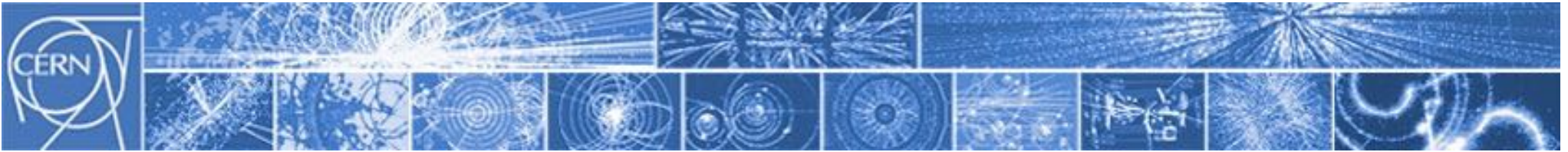




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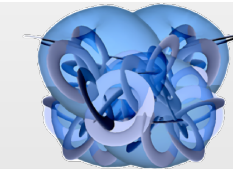
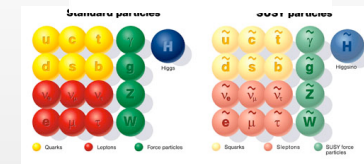
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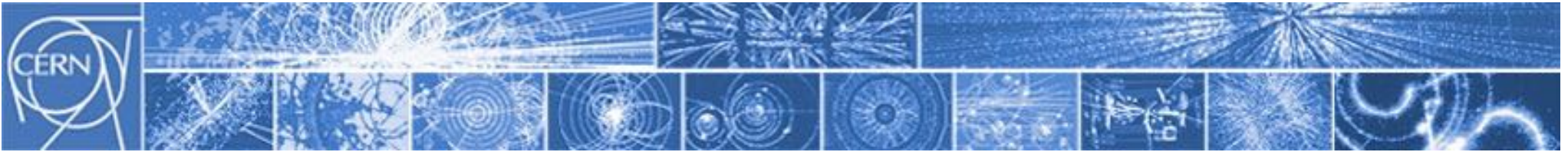




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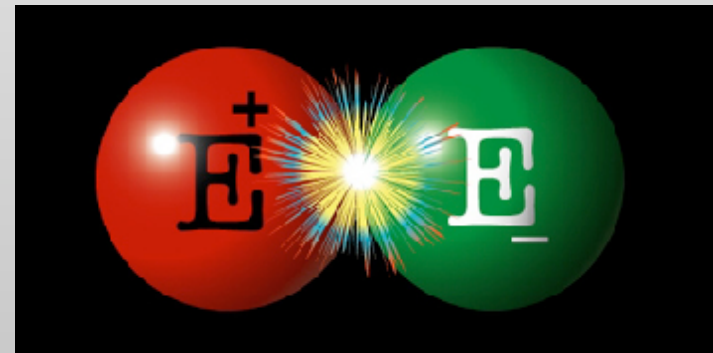
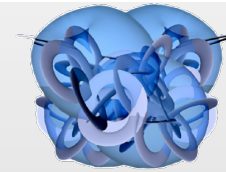
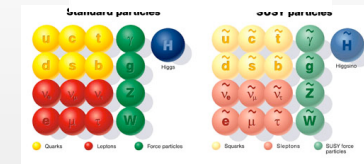
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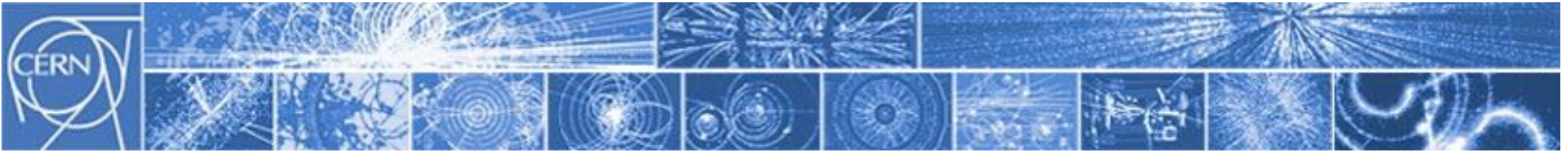




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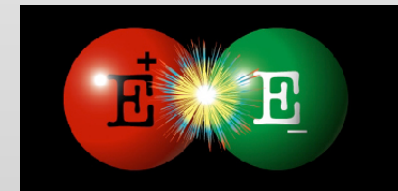
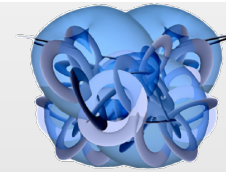
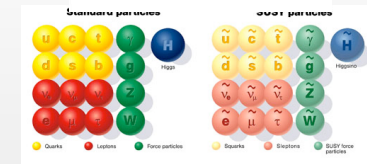
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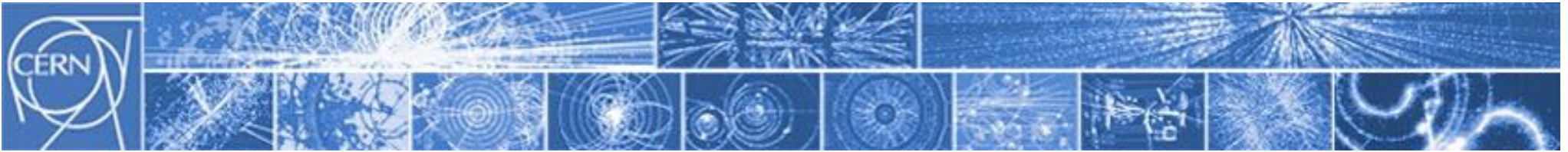




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