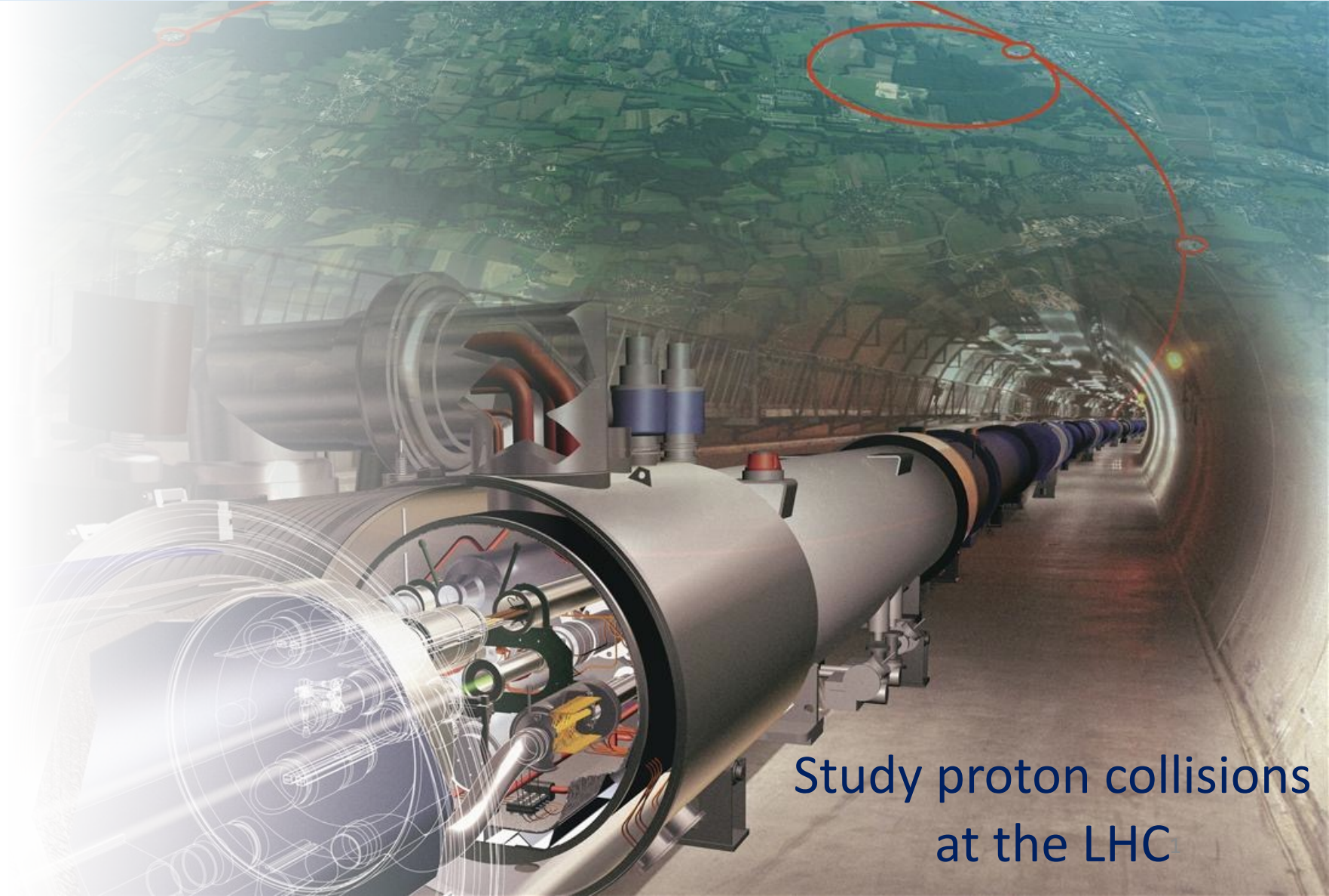


# Unlocking the charm-Higgs coupling at the LHC

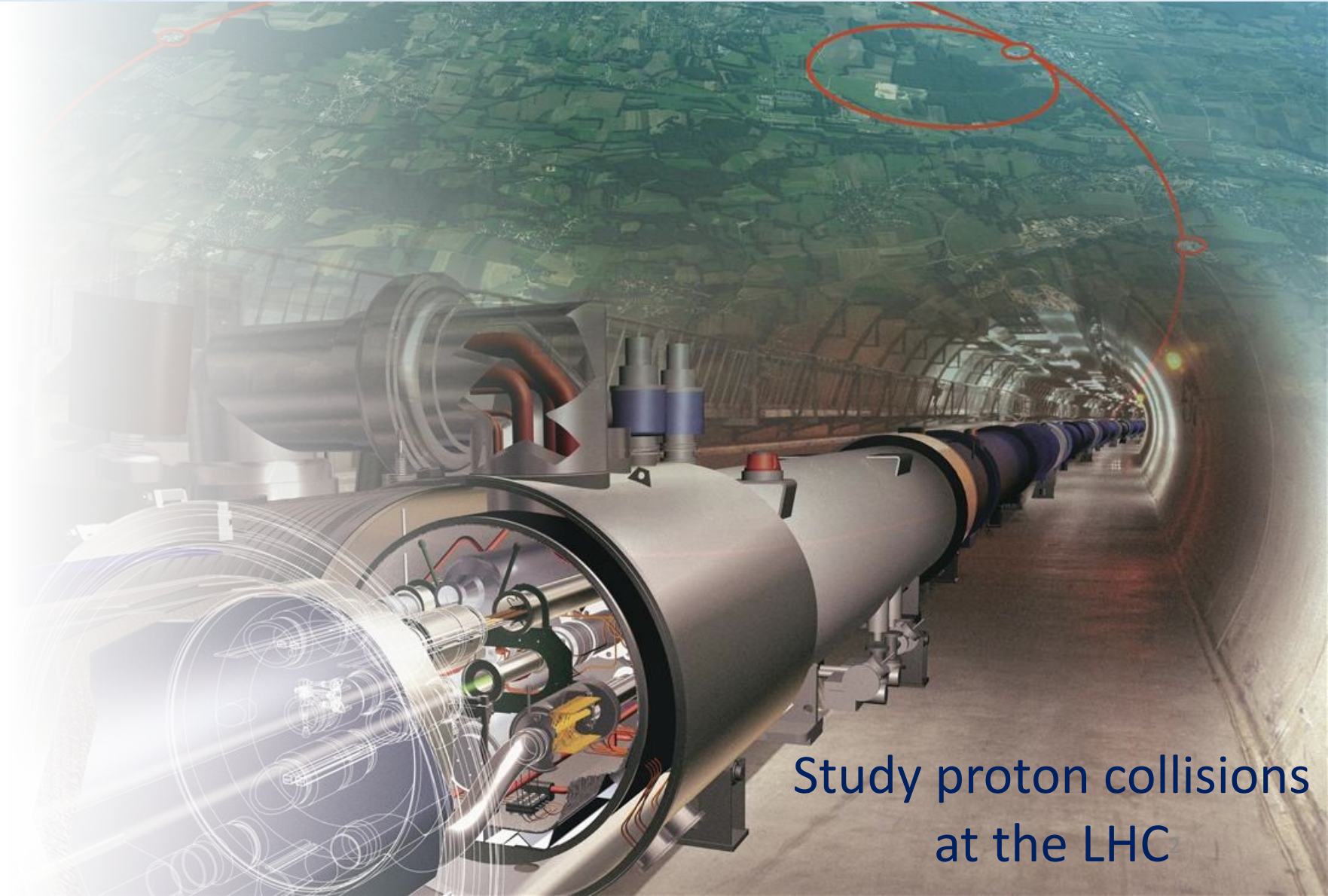
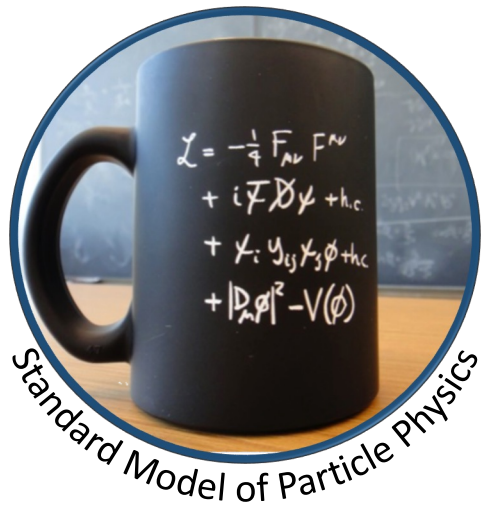


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Study proton collisions  
at the LHC

# Unlocking the charm-Higgs coupling at the LHC



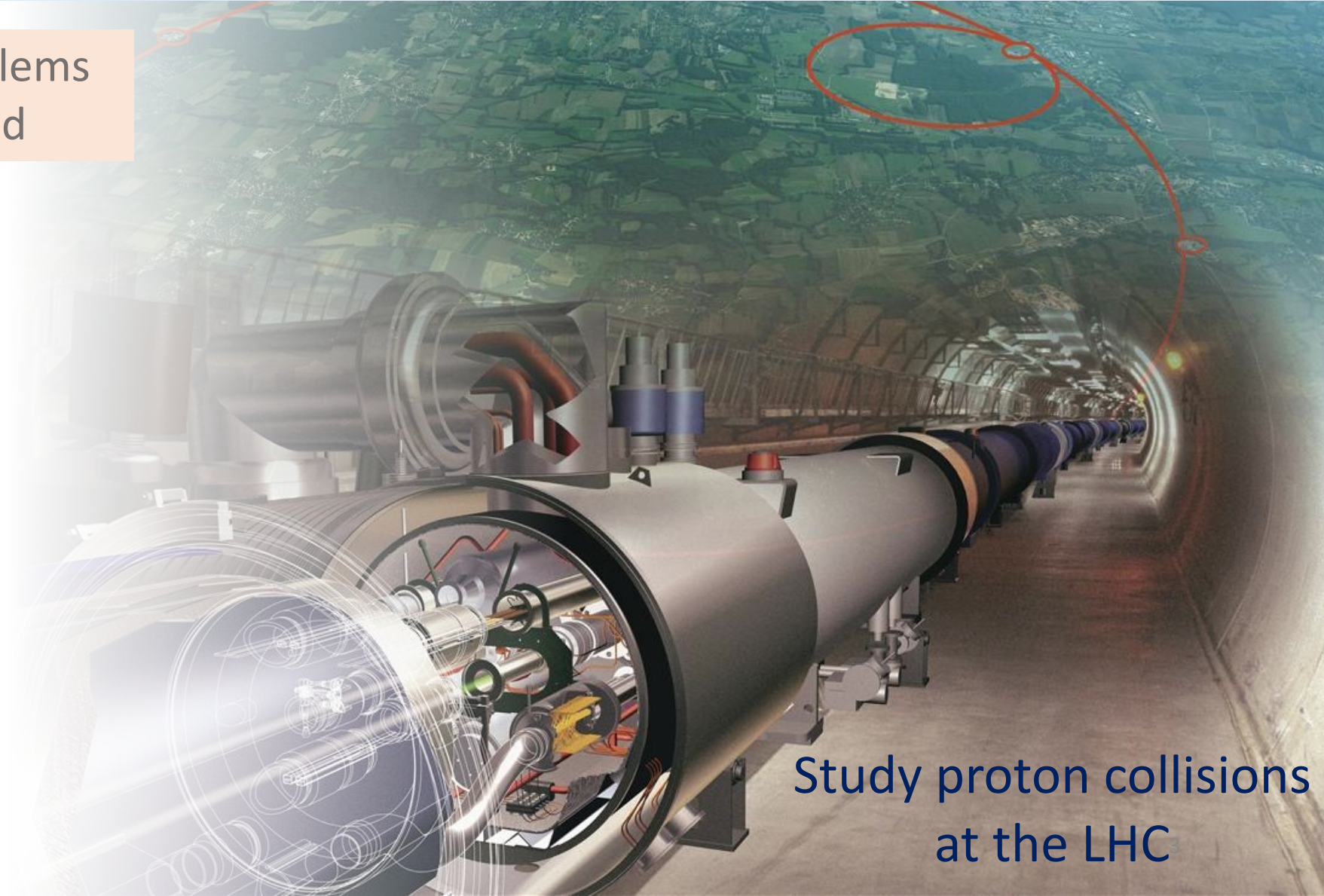
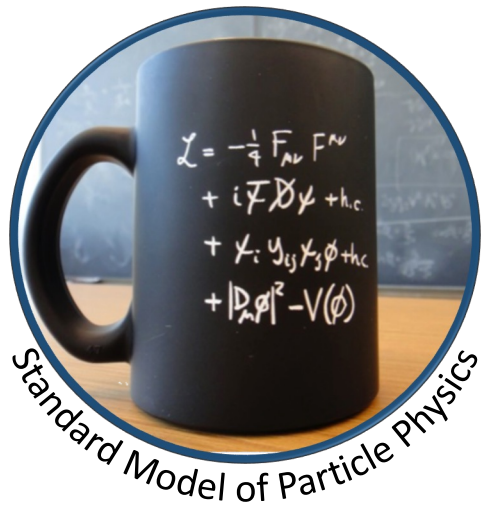
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# Unlocking the charm-Higgs coupling at the LHC

Many mysteries and problems remain to be addressed



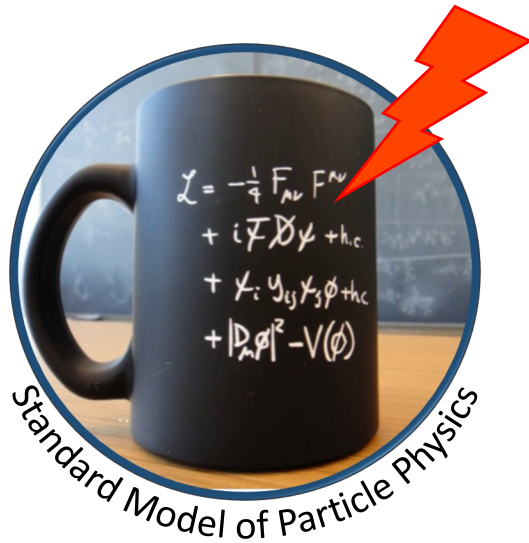
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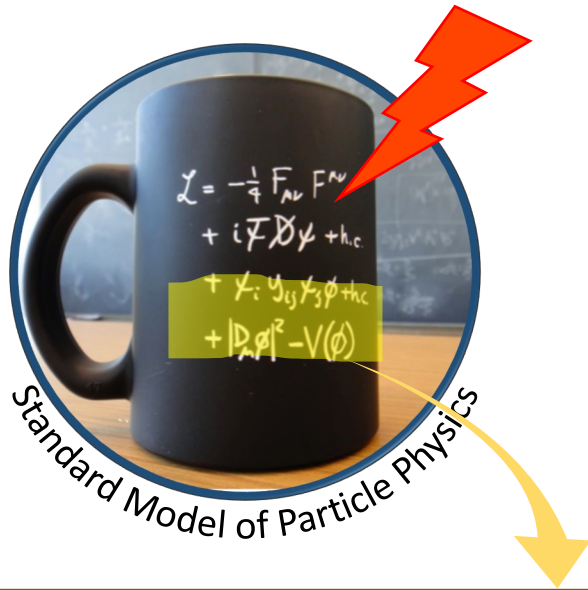
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*The Higgs sector is a unique window to probe for new physics*

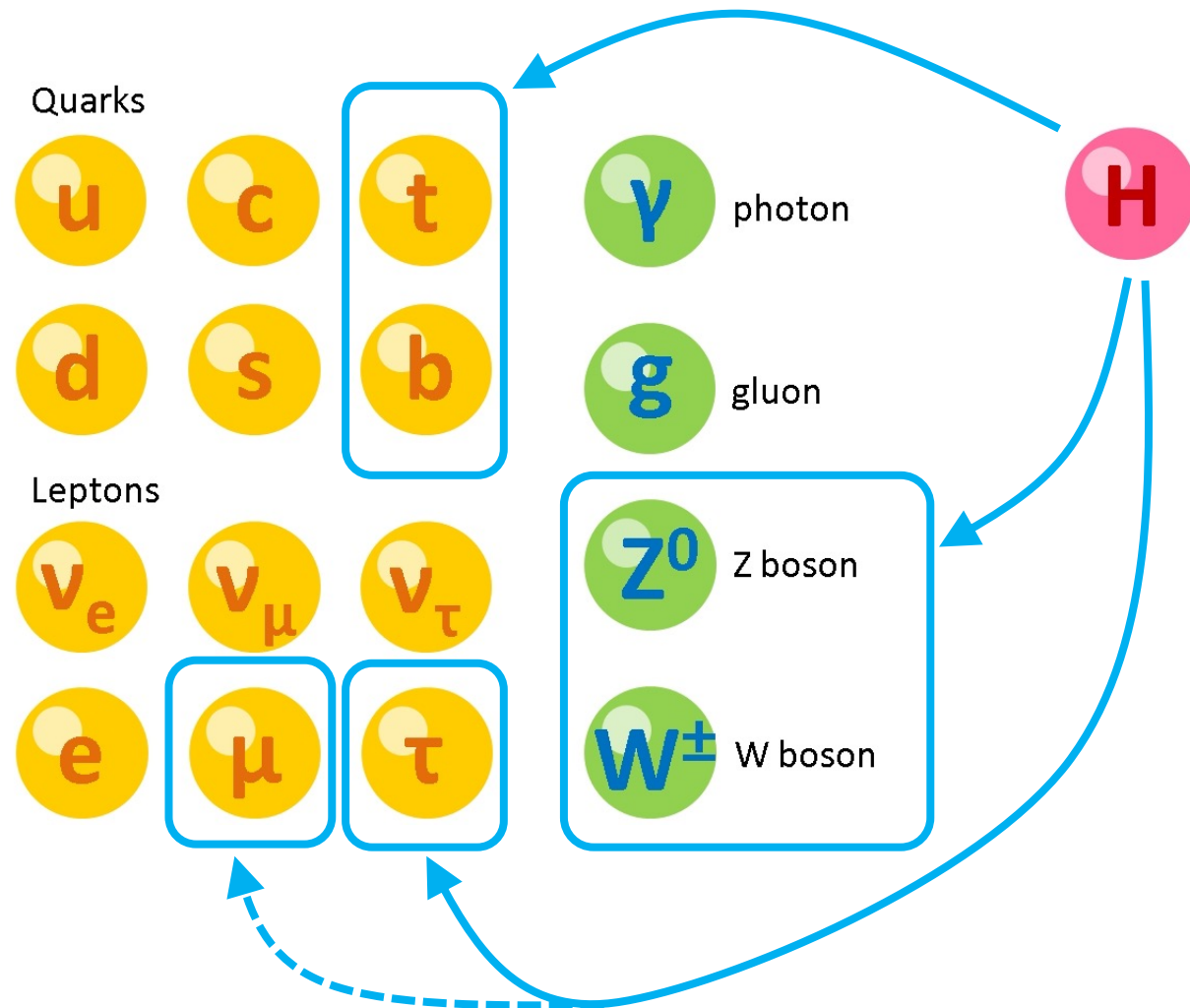
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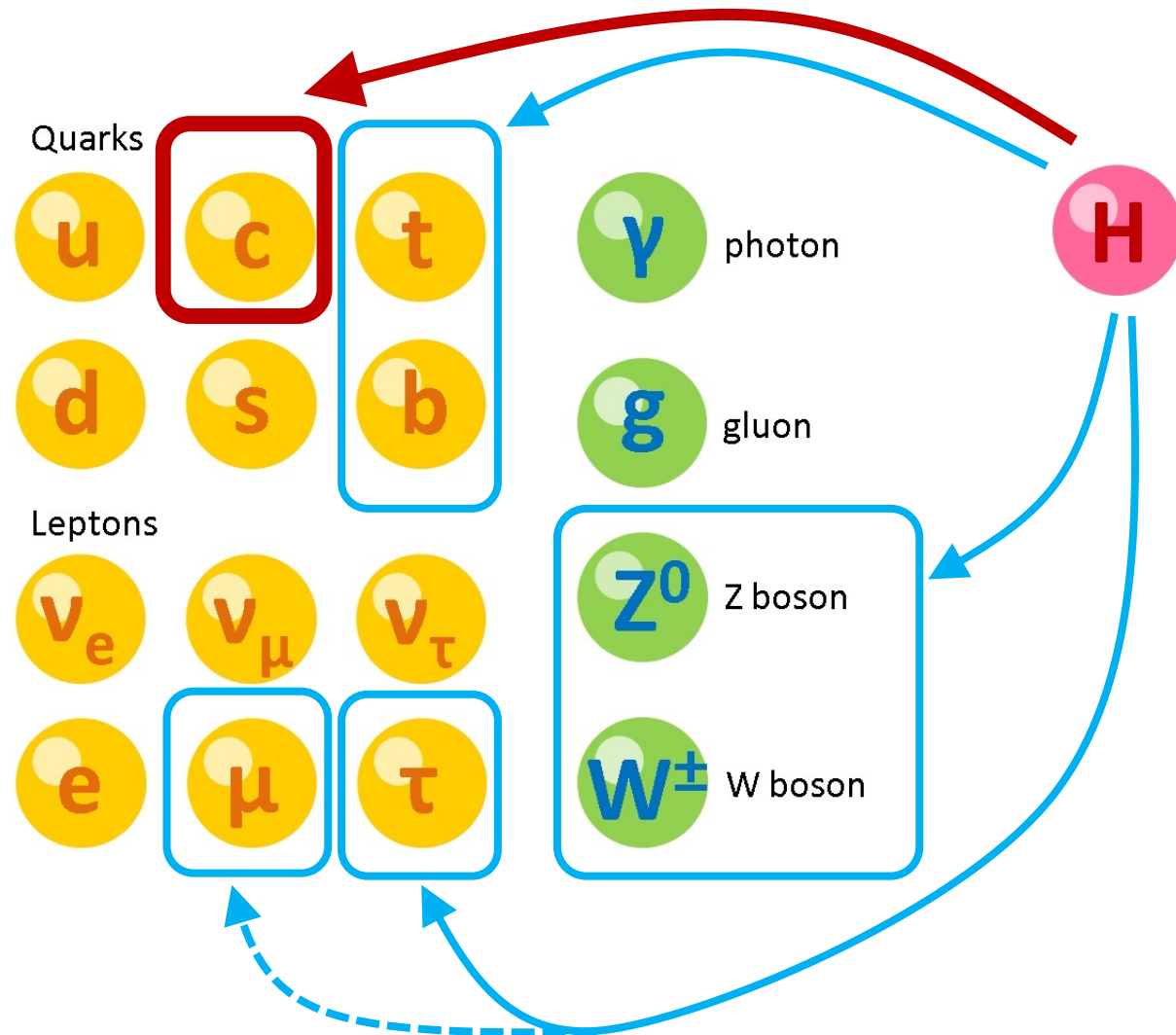
# The charm-Higgs coupling

The next window of opportunity at the LHC at CERN to probe for new physics phenomena



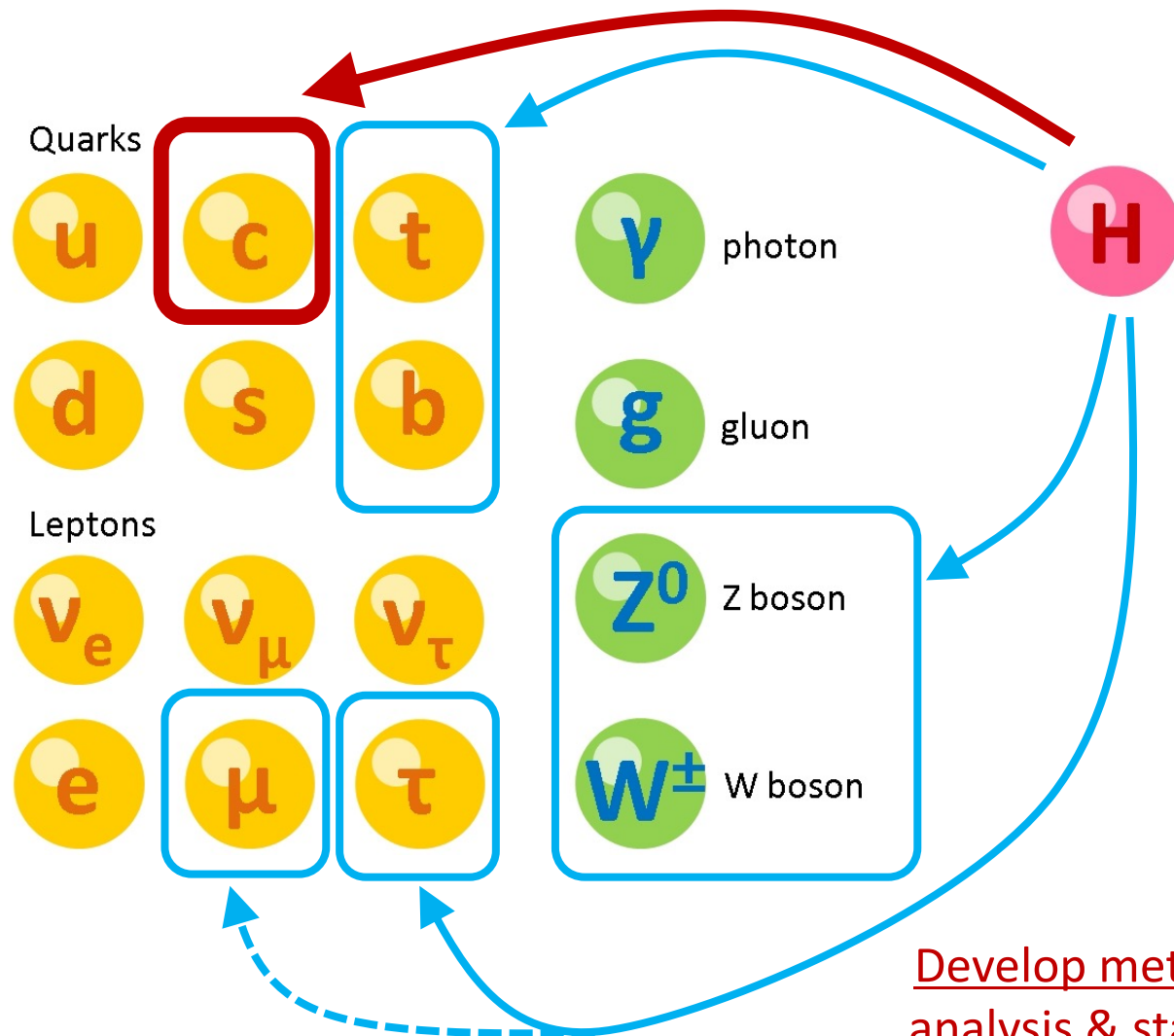
# The charm-Higgs coupling

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# The charm-Higgs coupling

The next window of opportunity at the LHC at CERN to probe for new physics phenomena



## Theory prediction

The particle mass depends on the coupling strength with the H field

$$y_f \propto \kappa_f m_f + \text{others}$$

$$g_V^2 \propto \kappa_V m_V^2 + \text{others}$$

*simple coupling modifiers  
(SM-oriented analysis)*

*involving new particles  
and/or new interactions  
(BSM-oriented analysis)*

Develop methods: machine learning, Effective Field Theories, data analysis & statistical methods, precision measurement methods, ...