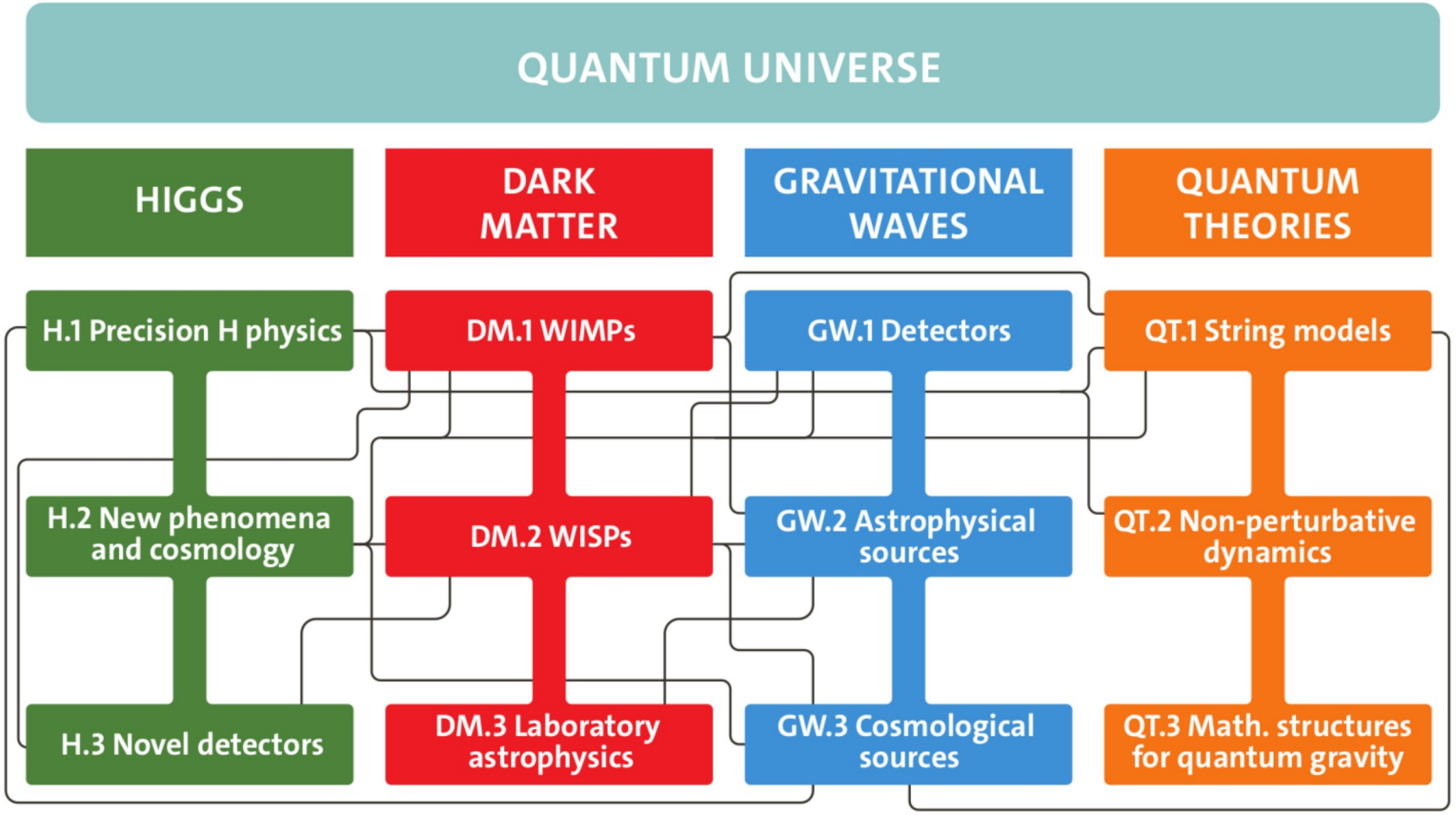

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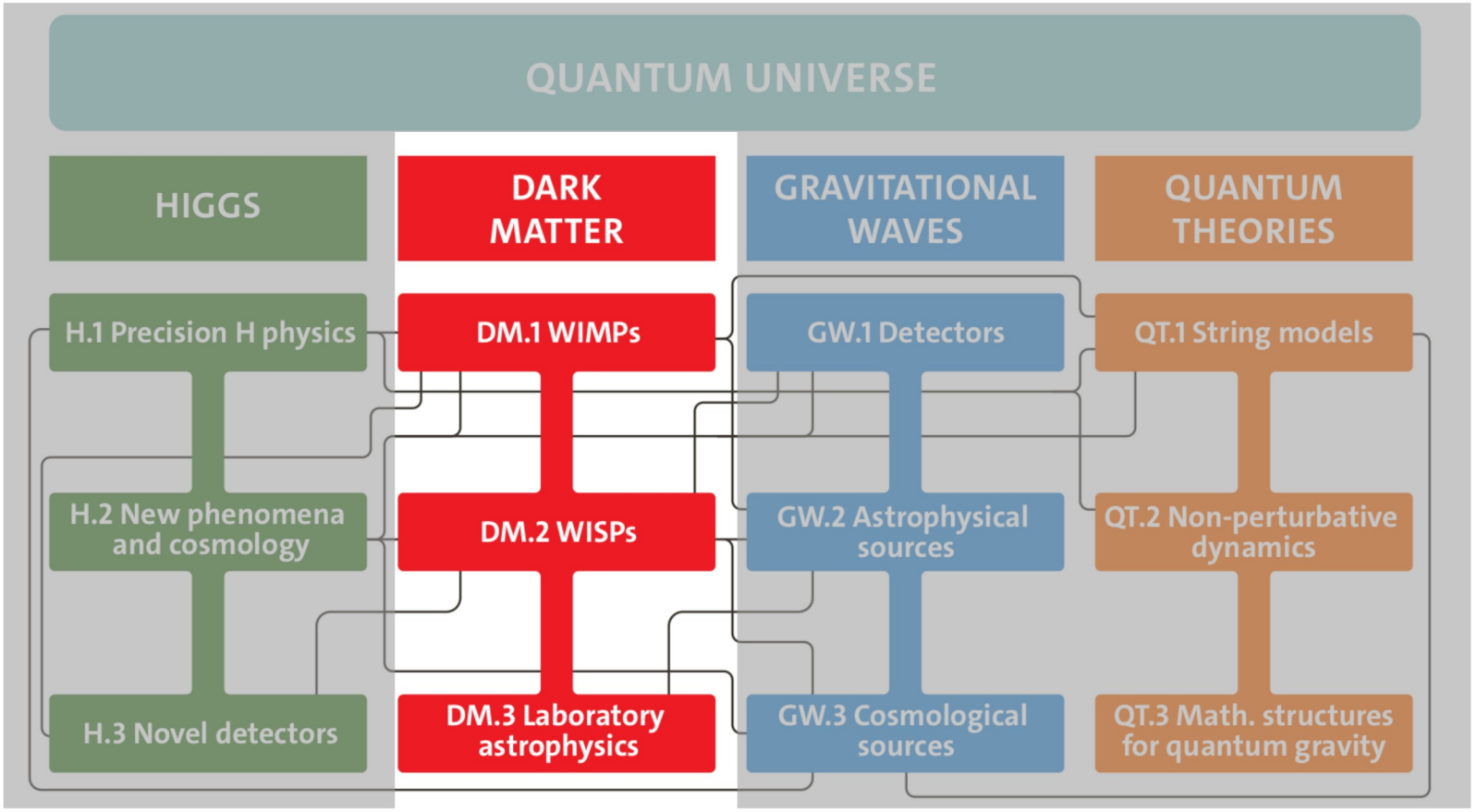
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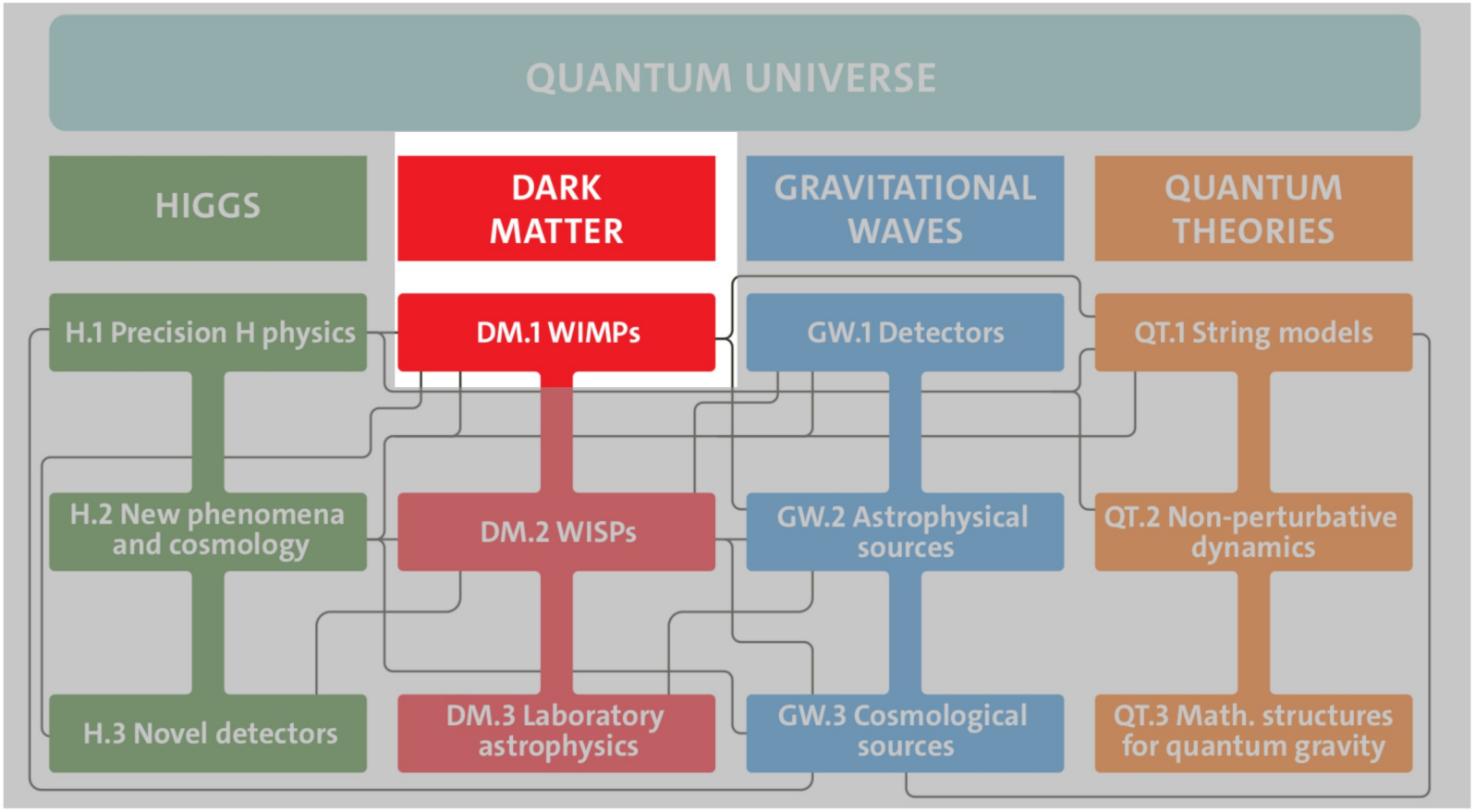

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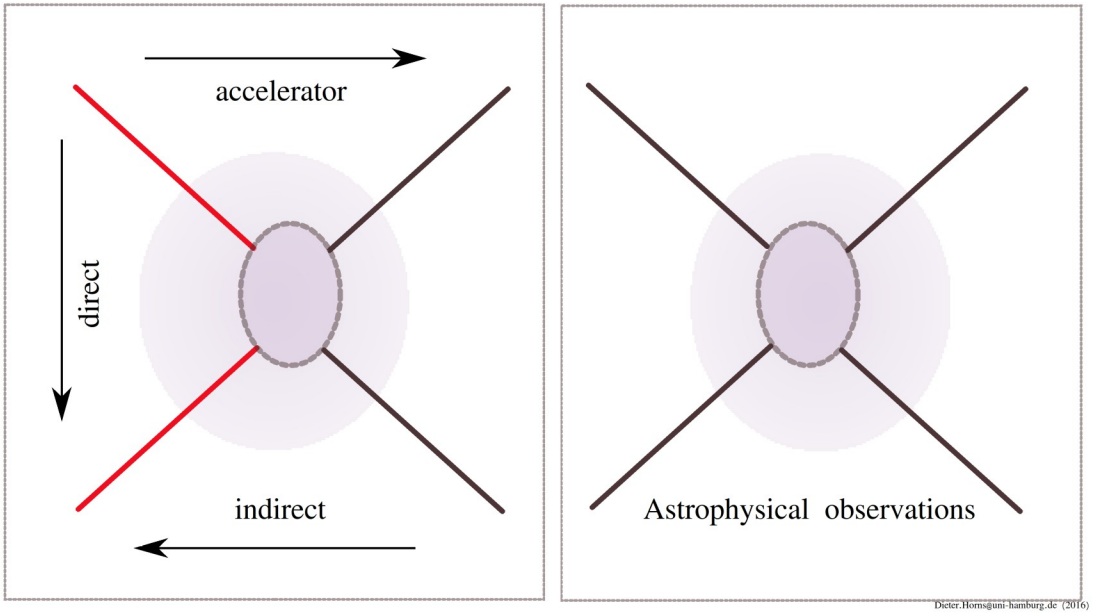
Approaching WIMPs and WIMP Dark Matter



DM 1: WIMPS

Proj. Coordinator: *Kai Schmidt-Hoberg*

Astrophysical observations

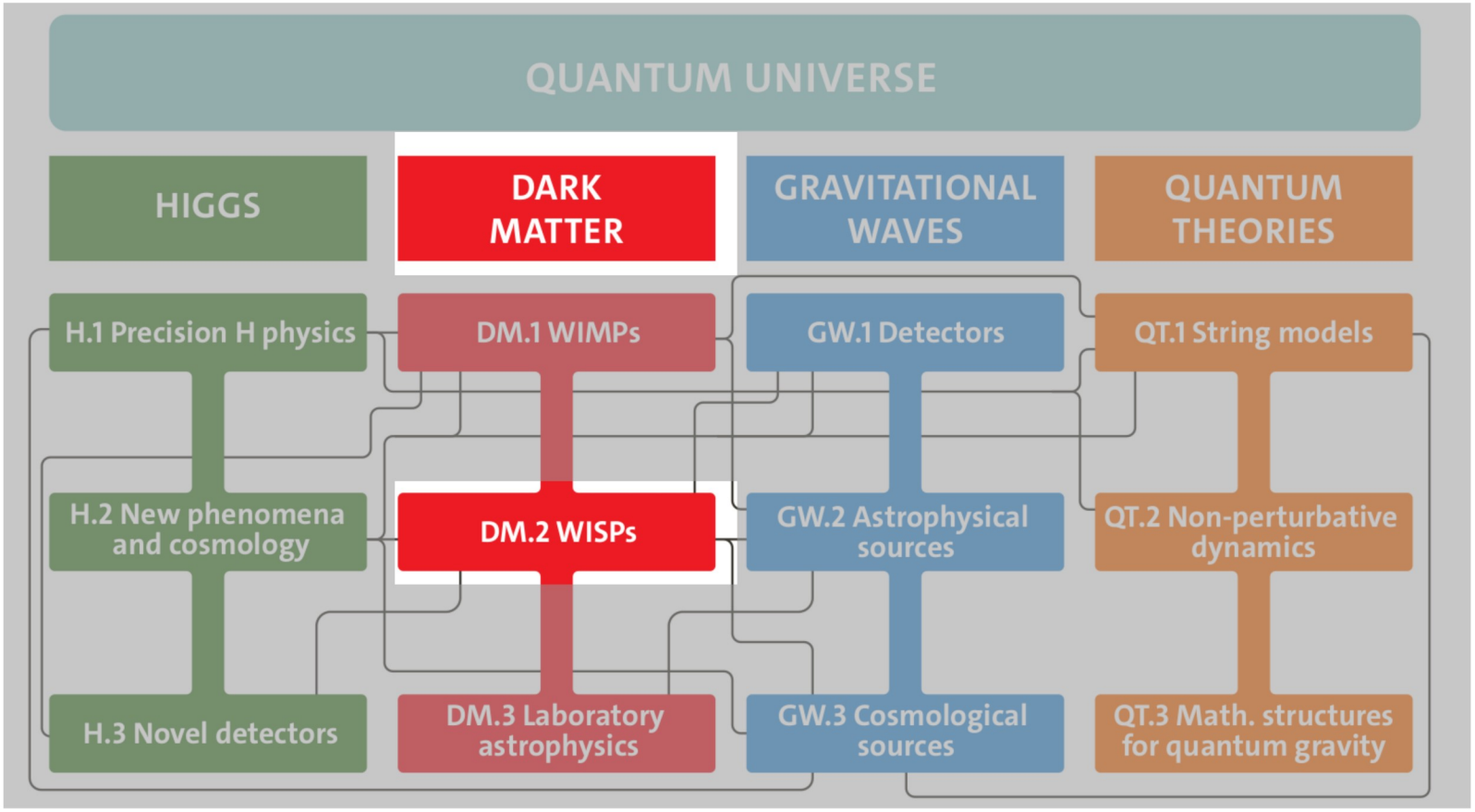
- DM 1.1 **Searches for DM using galaxy surveys** [Brüggen, Liske, Schmidt-Hoberg]
- DM 1.2 **Constraints on DM self-interactions** [Brüggen, Liske, Schmidt-Hoberg]

Collider searches

- DM 1.3 **Collider searches for light dark sectors** [Ferber, Hagner, Niebuhr, Schmidt-Hoberg]
- DM 1.4 **Collider searches for heavy dark sectors** [Haller, Heim, Heinemann, Kasieczka, Moortgat-Pick, Peters, Schleper, Schmidt-Hoberg, Schwanenberger, Servant, Styles, F. Tackmann, Weiglein]

Indirect searches

- DM 1.5 **Gamma-ray searches for heavy dark sectors** [Berge, Horns, Sala, Servant, Wischnewski]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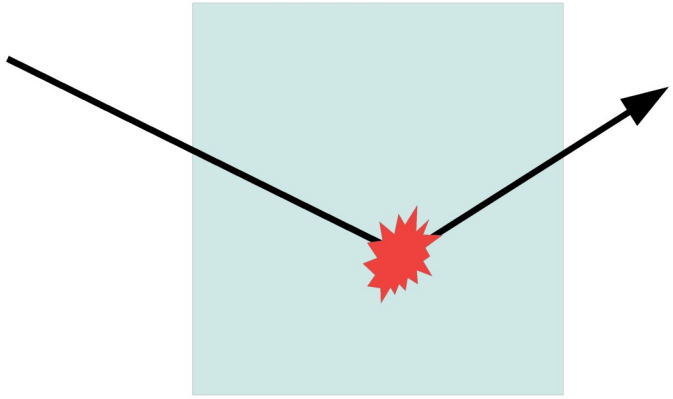
Searching for WISP DM (axions, vector bosons)

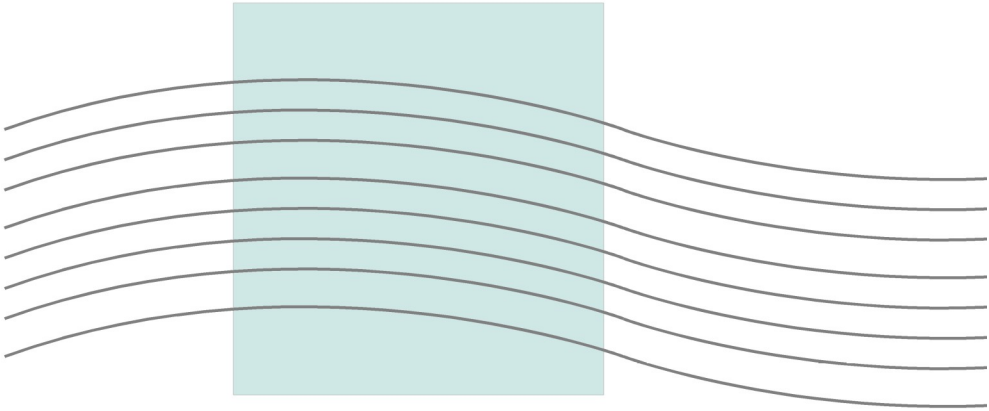
$$\mathcal{L}_I = -\frac{1}{2}\chi F_{\mu\nu}B^{\mu\nu}$$

$$\mathcal{L}_I = \frac{g}{4}F_{\mu\nu}\widetilde{F}^{\mu\nu}\phi$$

- WIMP haloscopes: elastic scattering
- WISP haloscopes: coherently oscillating electric field



Detector



Detector

$$\nu_{DM} = \frac{mc^2}{h}$$

$$\Delta\nu_{DM} \sim 10^{-6}\nu_{DM}$$

DM 2: WISPS

Proj. Coordinator: ***new W3 (comm. DH)***

WISP Haloscopes

- DM 2.1 **BRASS** [Horns]
- DM 2.2 **MADMAX** [Garutti, Lindner, Schaffran]

WISP Helioscopes

- DM 2.3 **IAXO** [Lindner, Schaffran, new W3]

Experimental developments

- DM 2.4 **Other WISP experiments** [Horns, new W3]
- DM 2.5 **Cryogenic Detectors** [Horns]

- DM 2.6 **Theory** [Louis, Ringwald, Servant, Sigl, Westphal]

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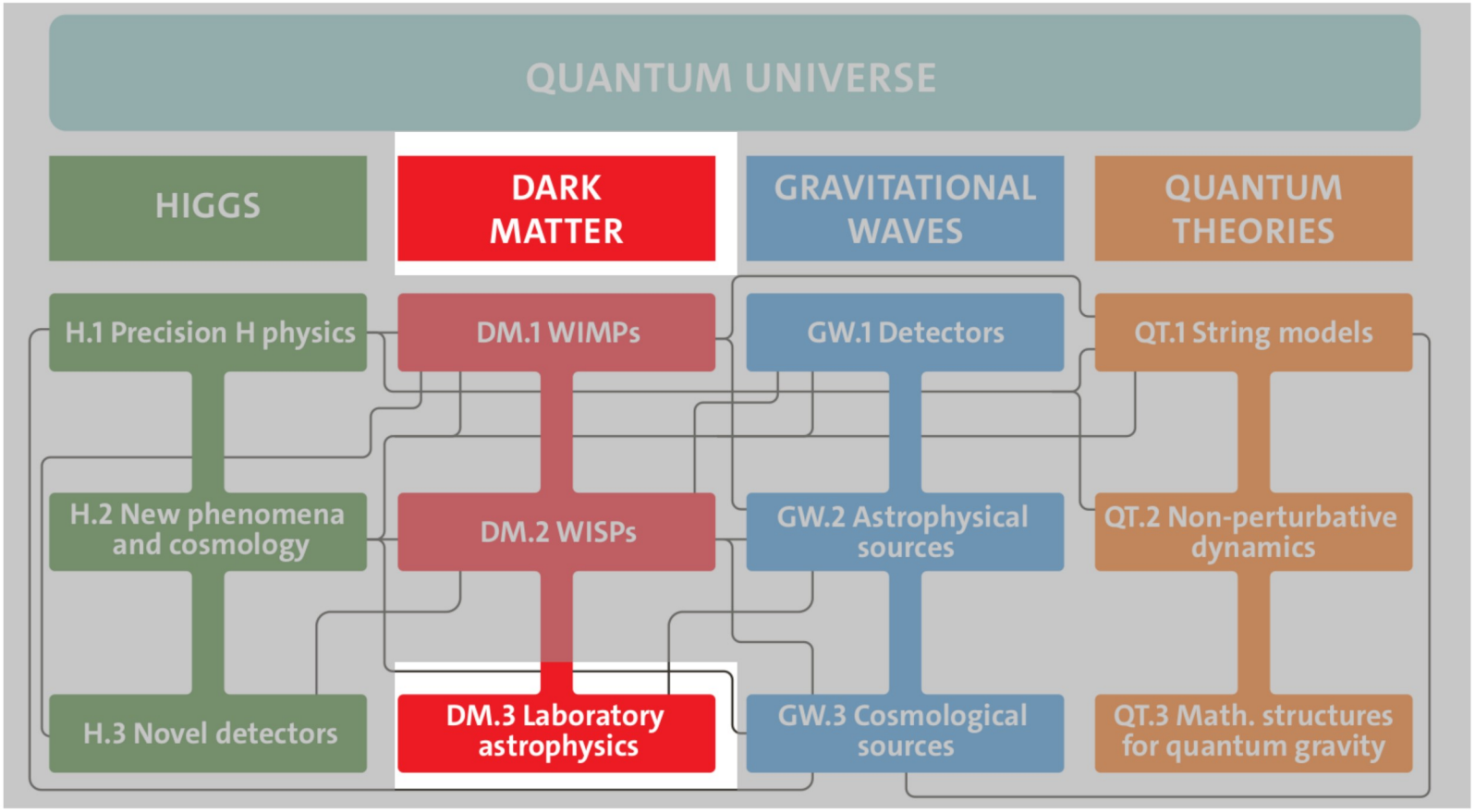

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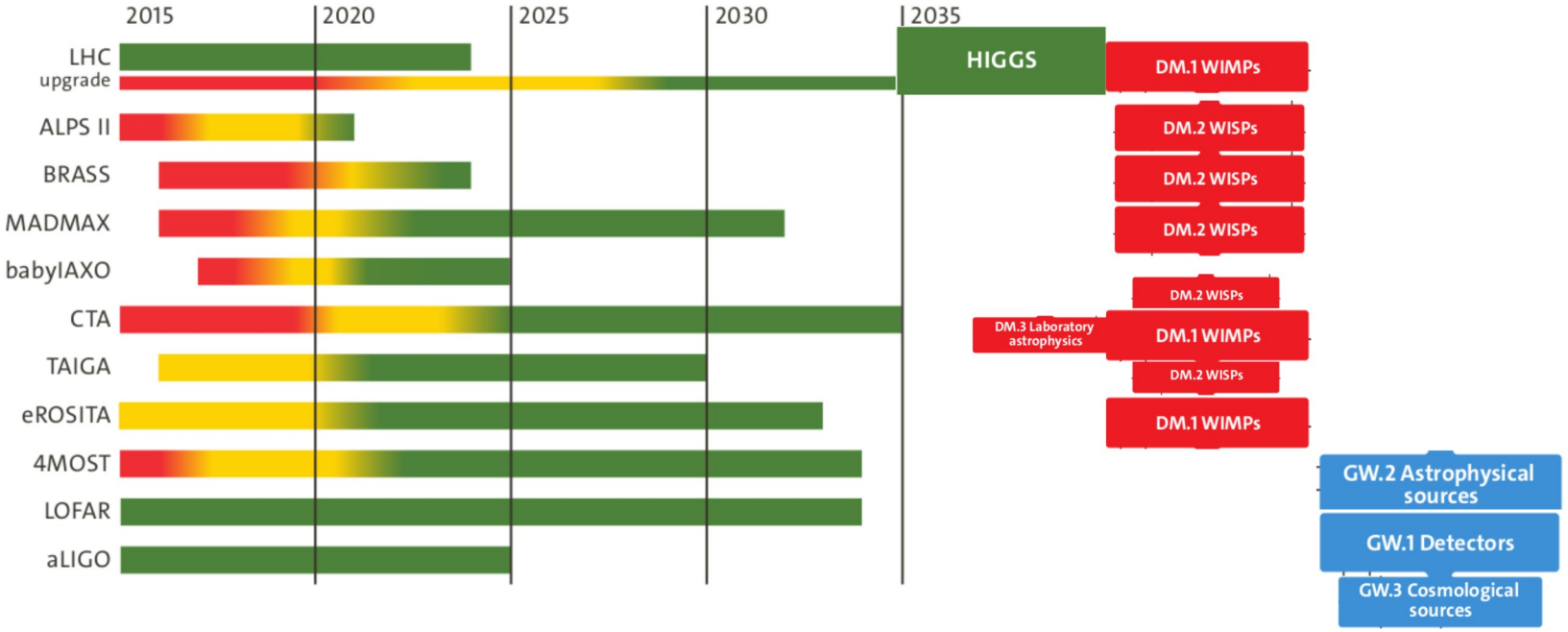
DM3: Laboratory (&) Astrophysics

Proj. Coordinator: *Florian Grüner*

- DM 3.1: **Design study based on PIC simulations** [Brüggen, Grüner, Maier, Osterhoff, Pohl, Sigl]
- DM 3.2: **New laboratory-based experiments** [Assmann, Grüner, Maier, Zastrau]
- DM 3.3: **Astrophysical Implications** [Brüggen, Pohl, Sigl]

Dark Matter: QU experiments and observatories



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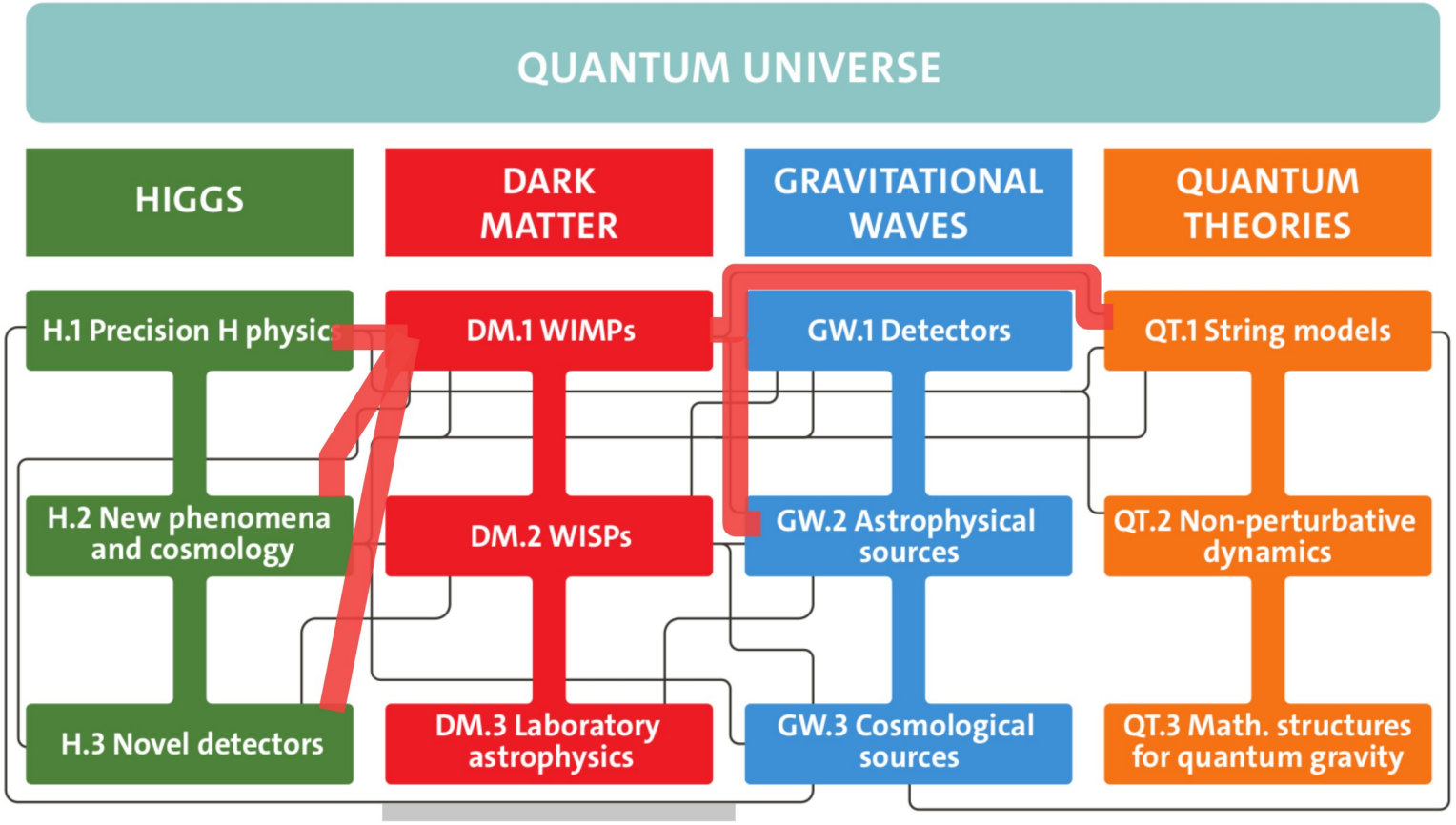
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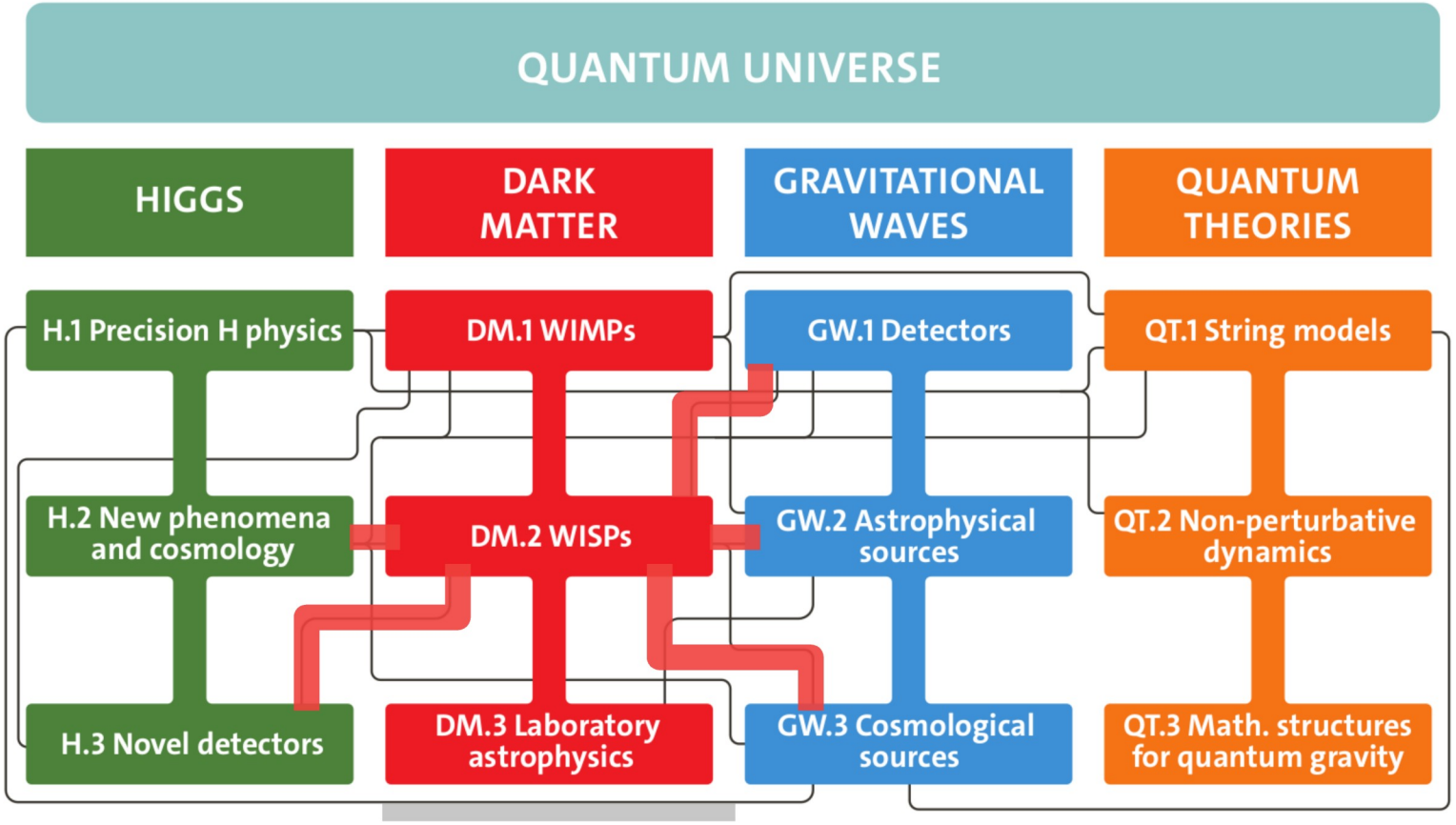
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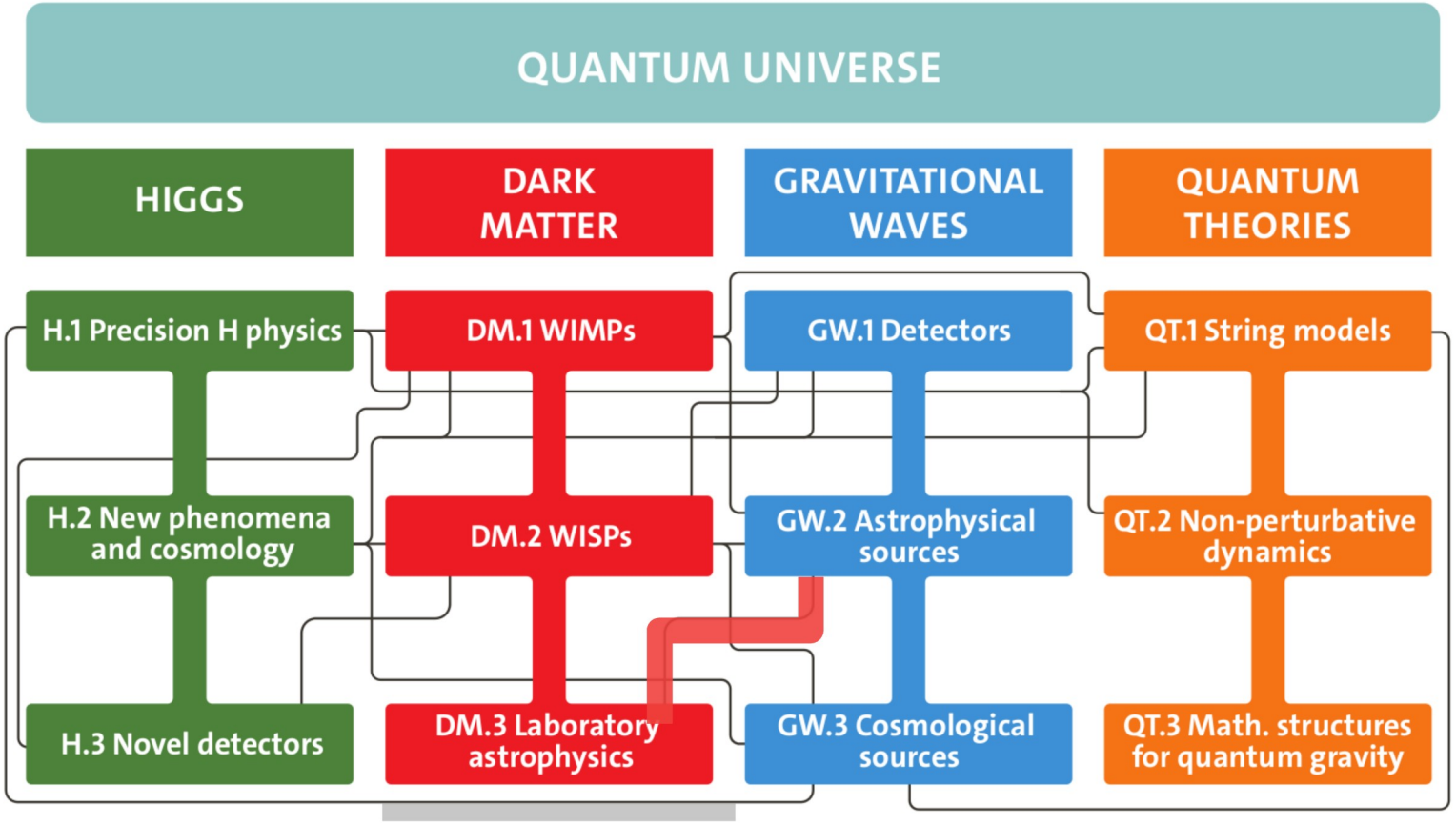
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Dark Matter problem

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