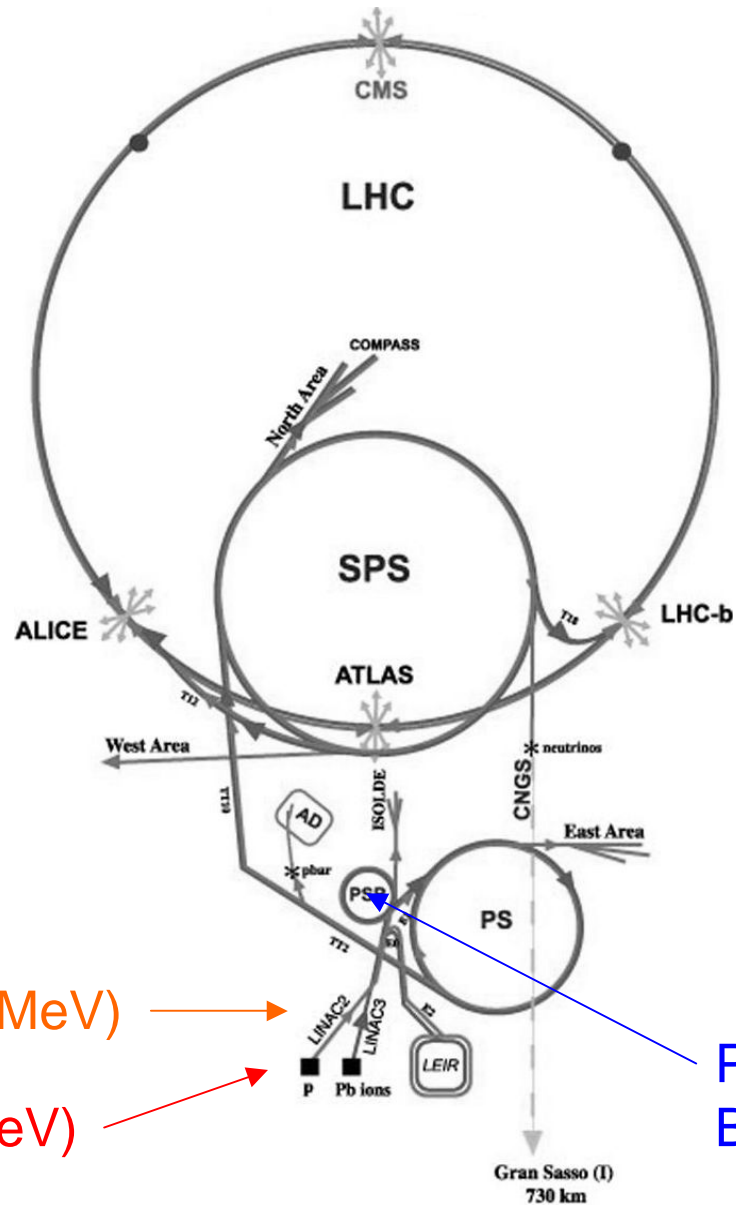


Teil 10: Large Hadron Collider



LHC und Vorbeschleuniger

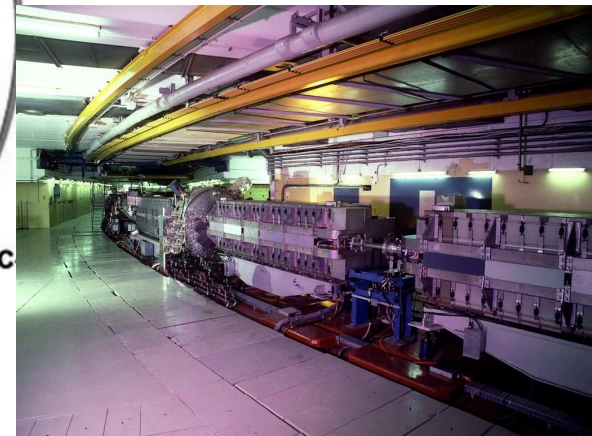
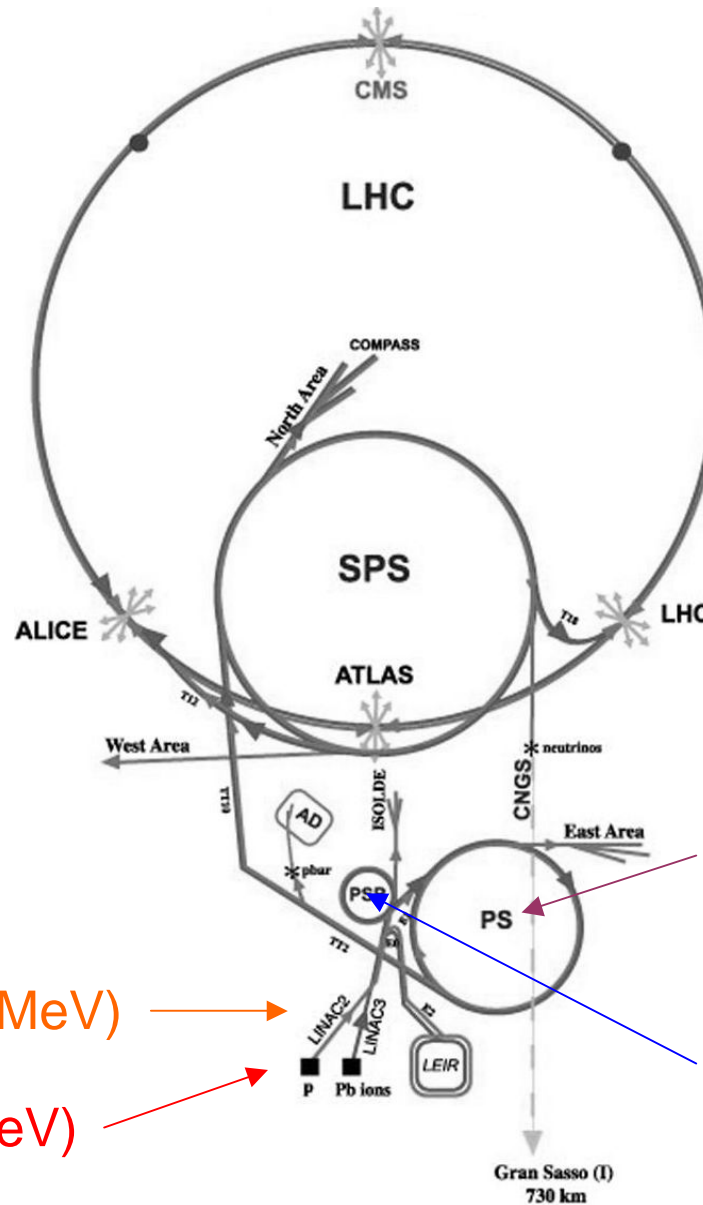


LINAC2 (50 MeV) →

Quelle (90 keV) →

Proton Synchrotron
Booster (1,4 GeV)

LHC und Vorbeschleuniger



LINAC2 (50 MeV) →

Quelle (90 keV) →

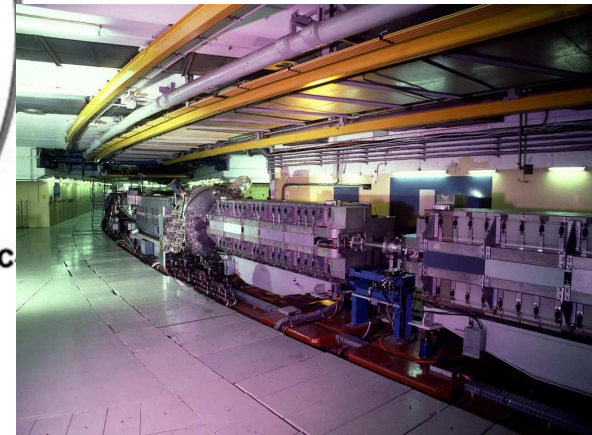
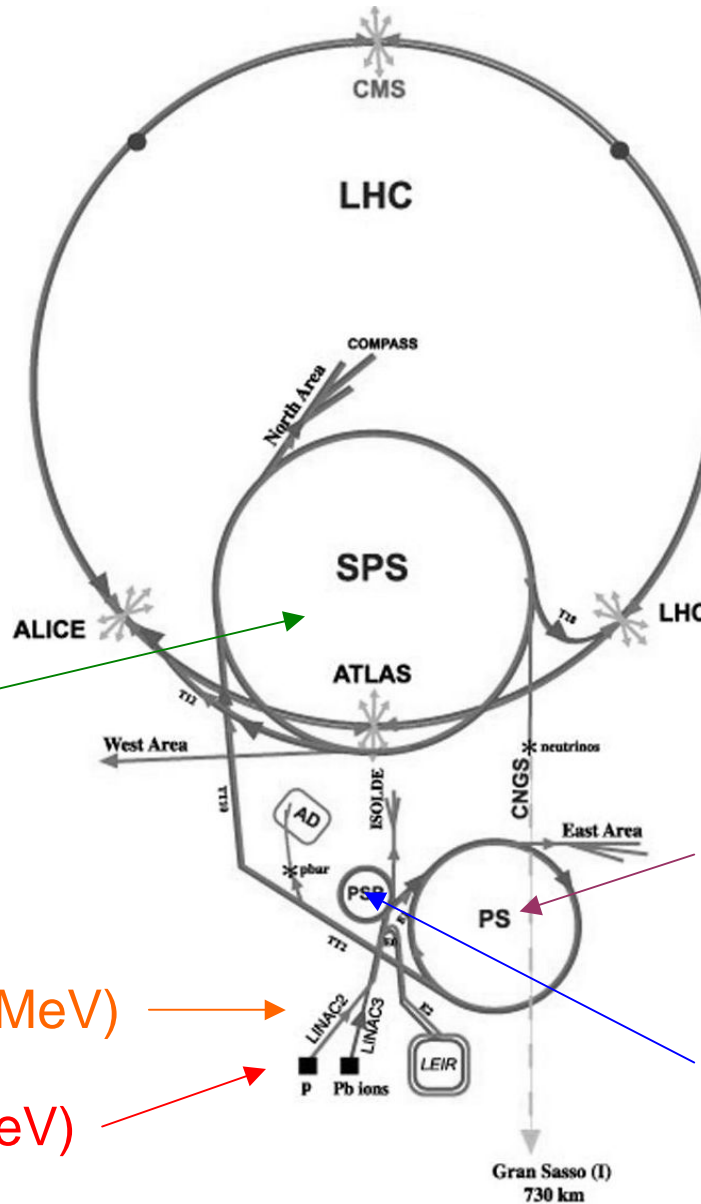
Proton Synchrotron (25 GeV)

Proton Synchrotron Booster (1,4 GeV)

LHC und Vorbeschleuniger



Super Proton Synchrotron (450 GeV)



Proton Synchrotron (25 GeV)

LINAC2 (50 MeV)

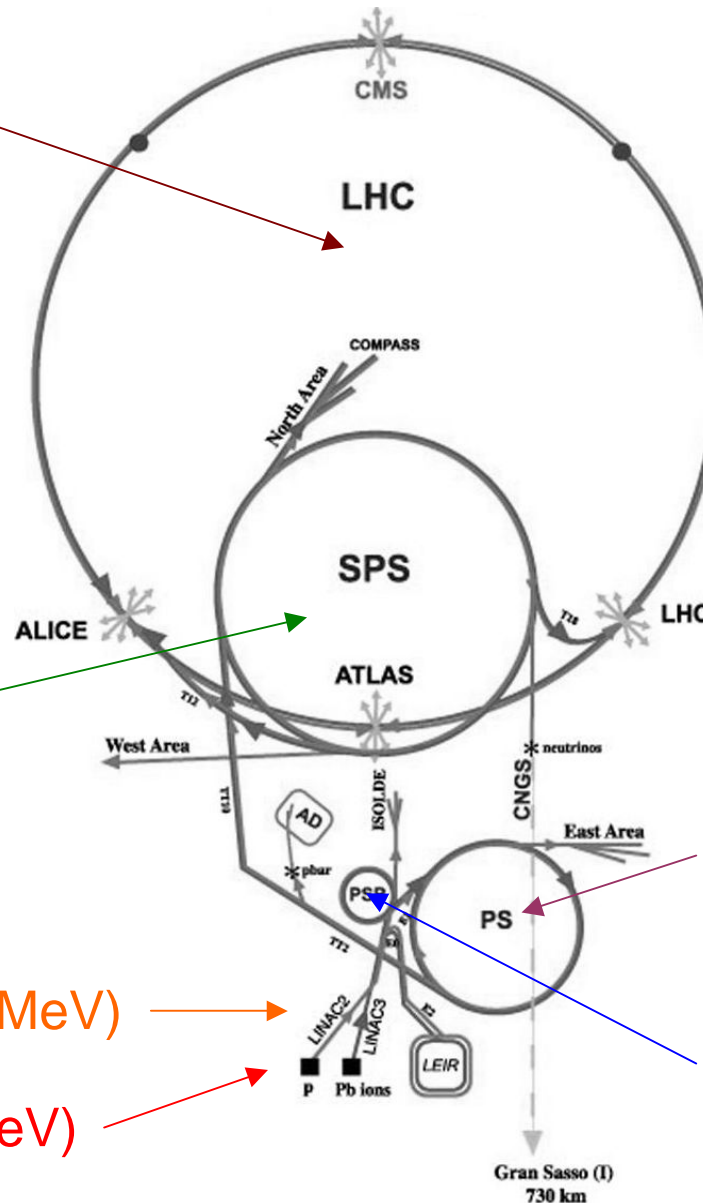
Quelle (90 keV)

Proton Synchrotron Booster (1,4 GeV)

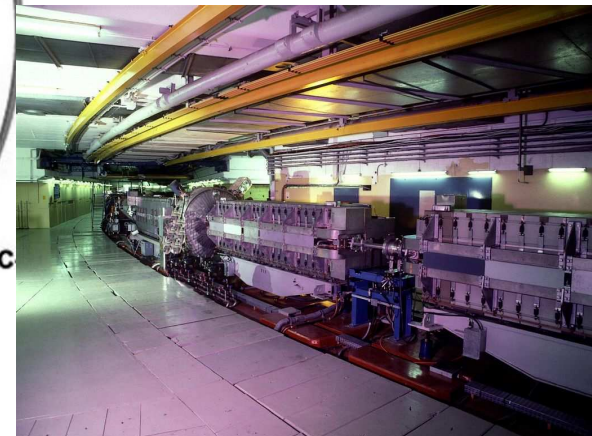
LHC und Vorbeschleuniger



Large Hadron Collider (7 TeV)



Super Proton Synchrotron (450 GeV)



Proton Synchrotron (25 GeV)

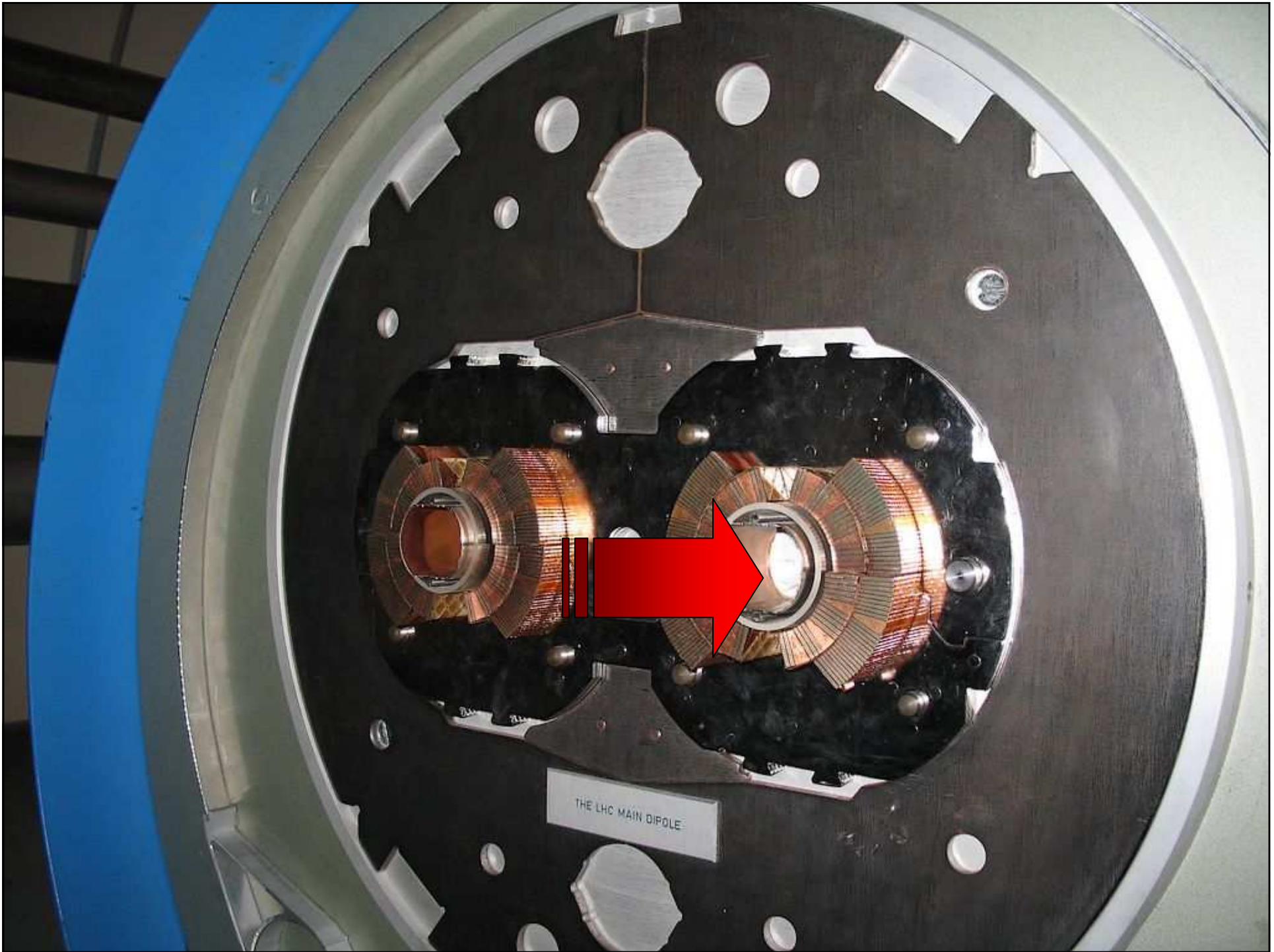
LINAC2 (50 MeV)

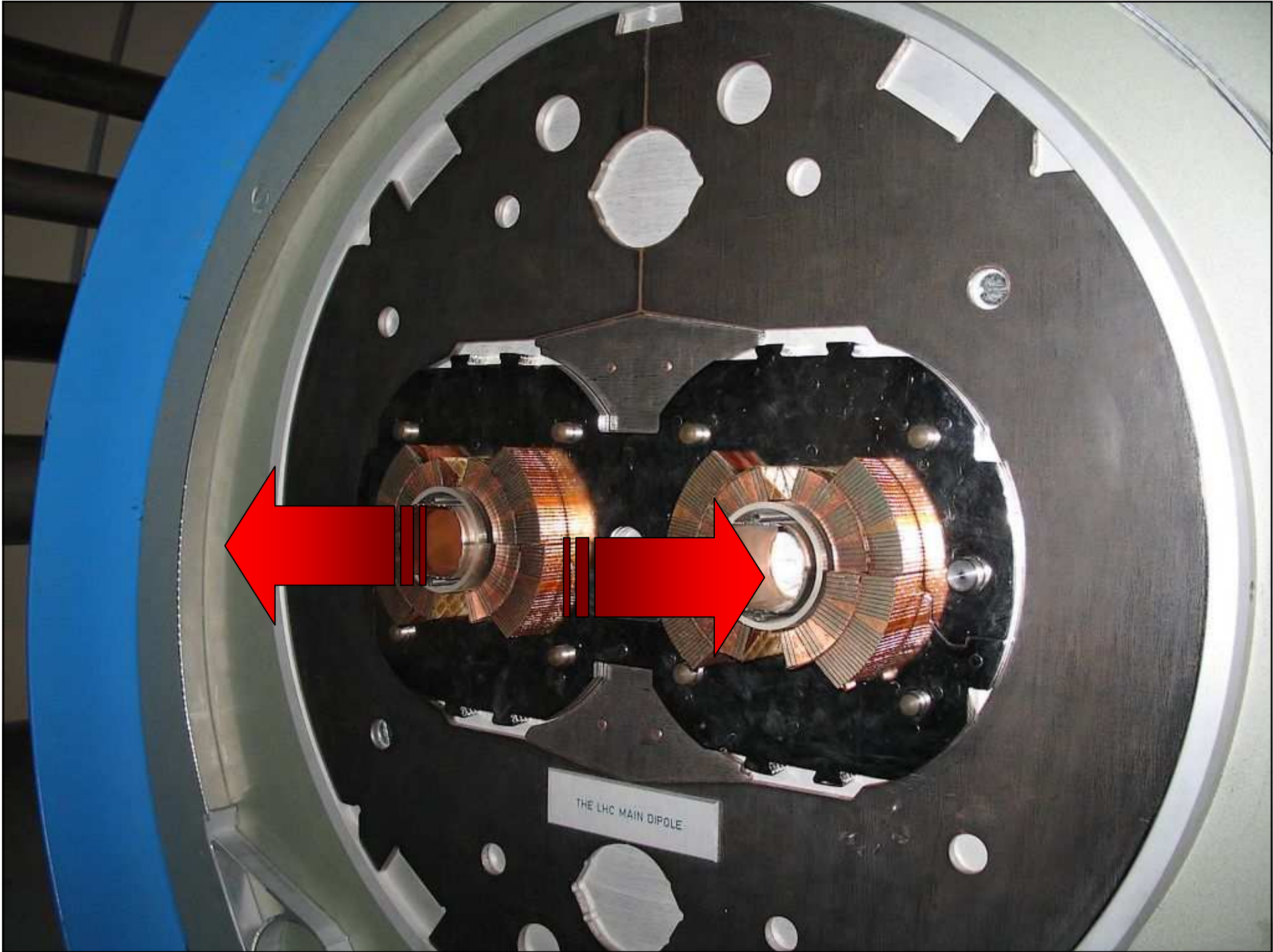
Quelle (90 keV)

Proton Synchrotron Booster (1,4 GeV)

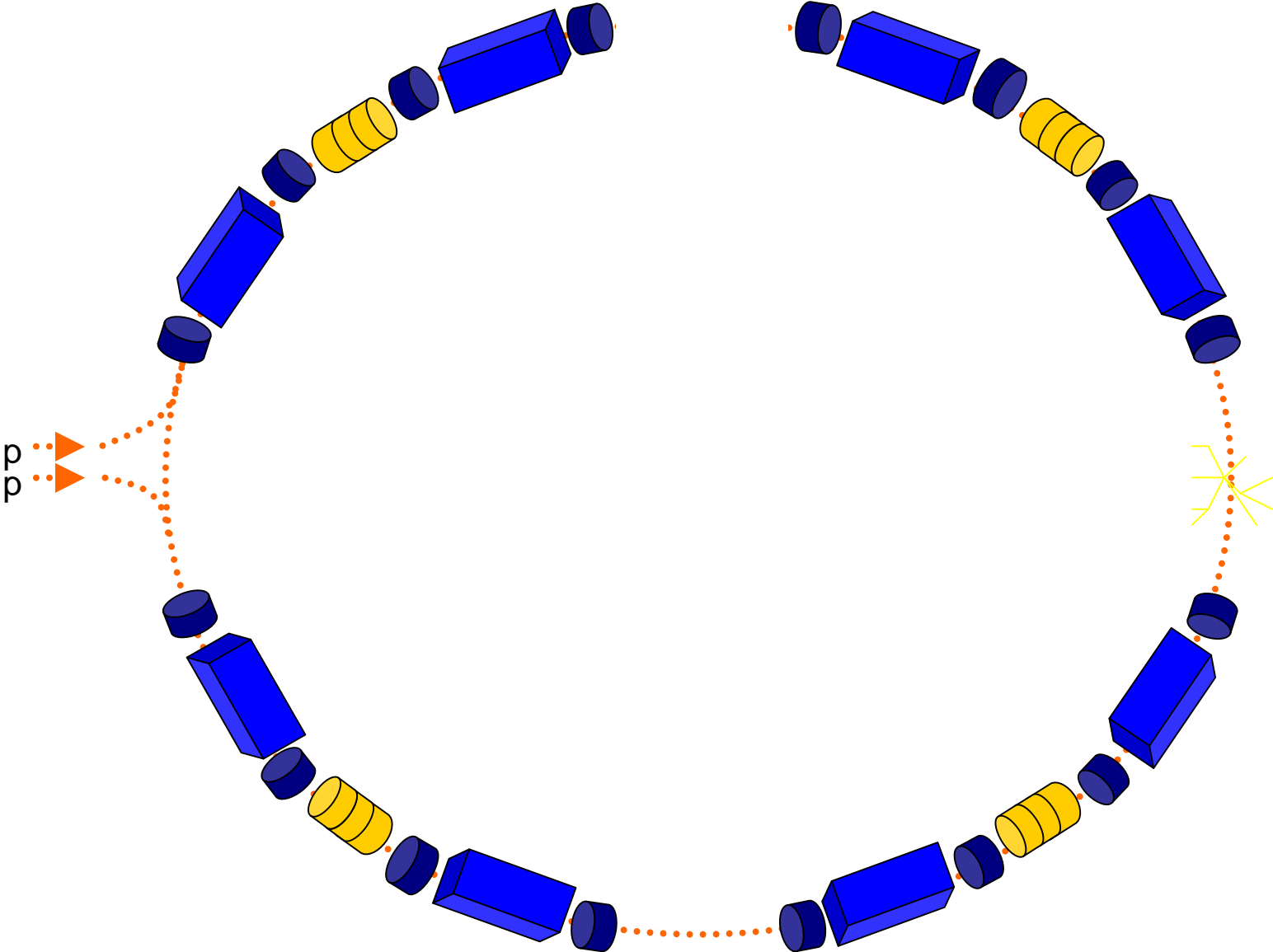




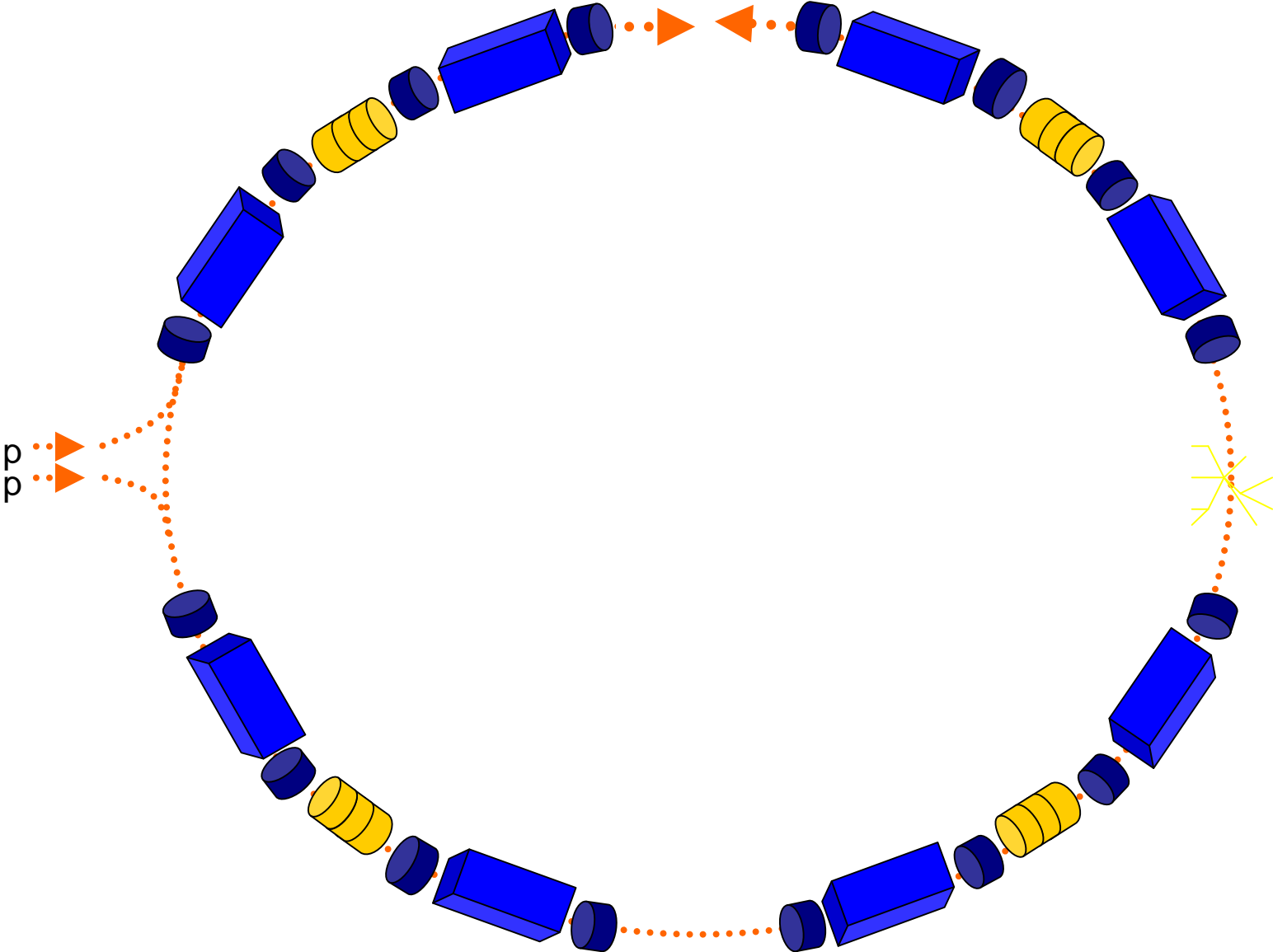




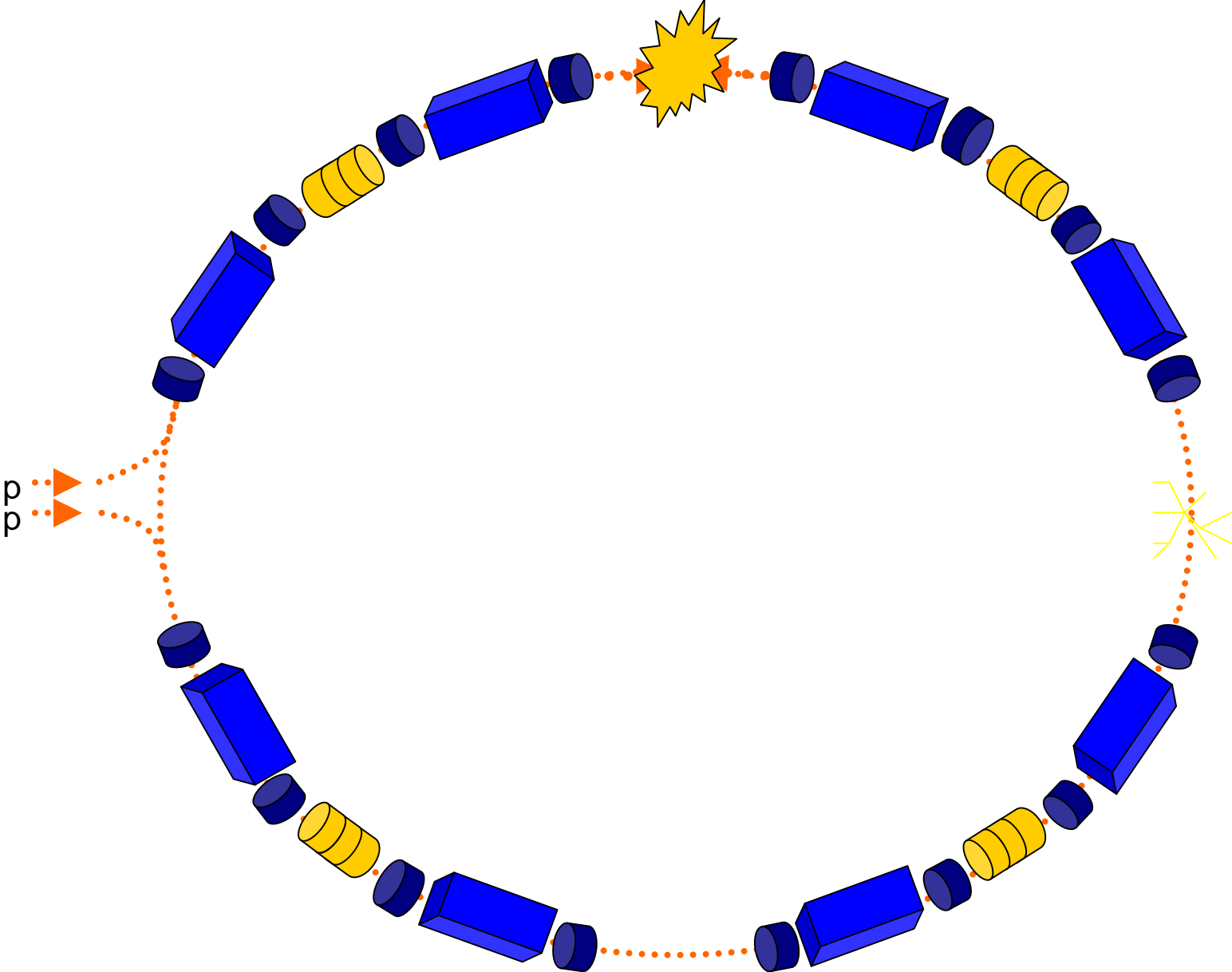
Collider

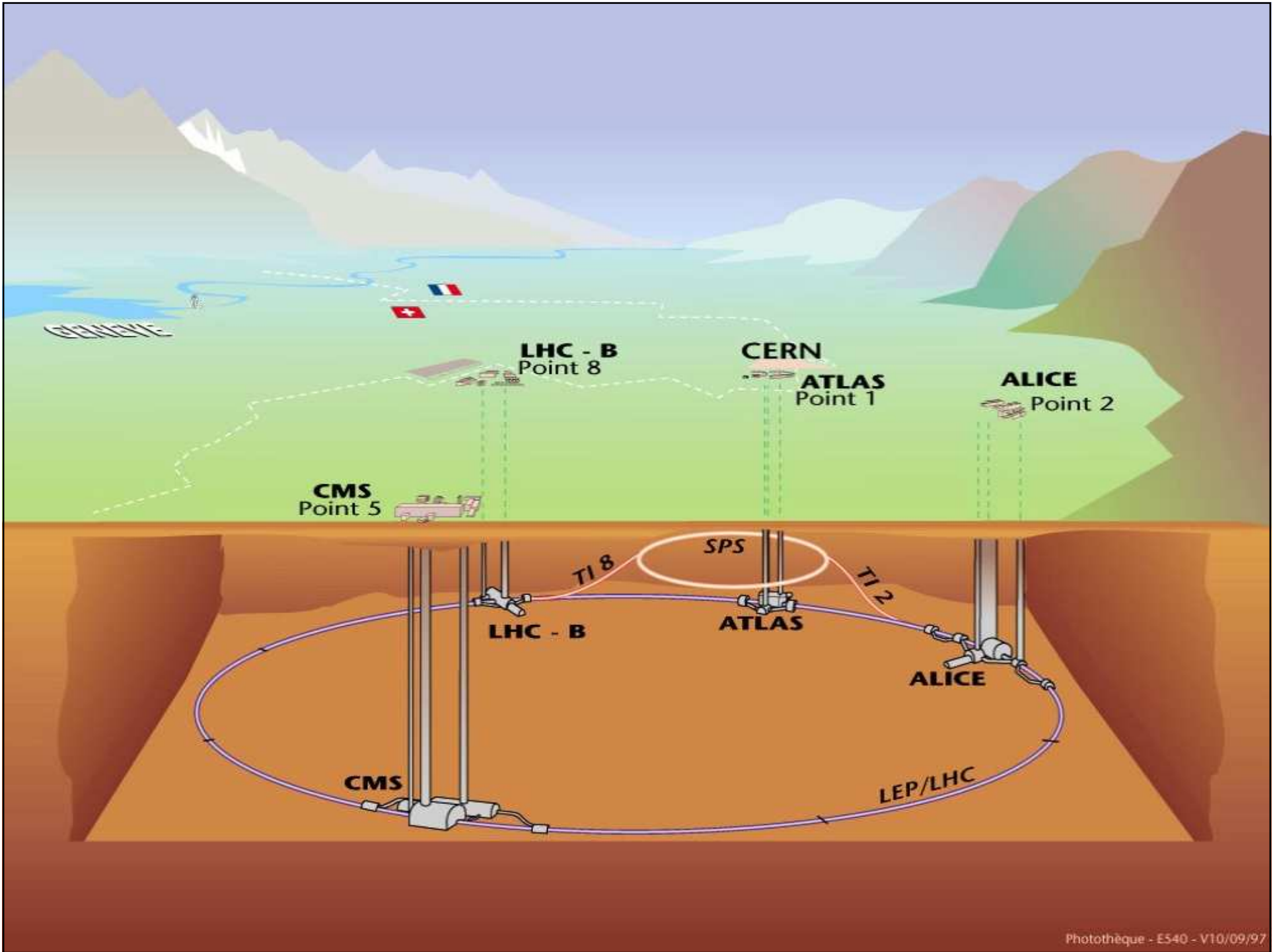


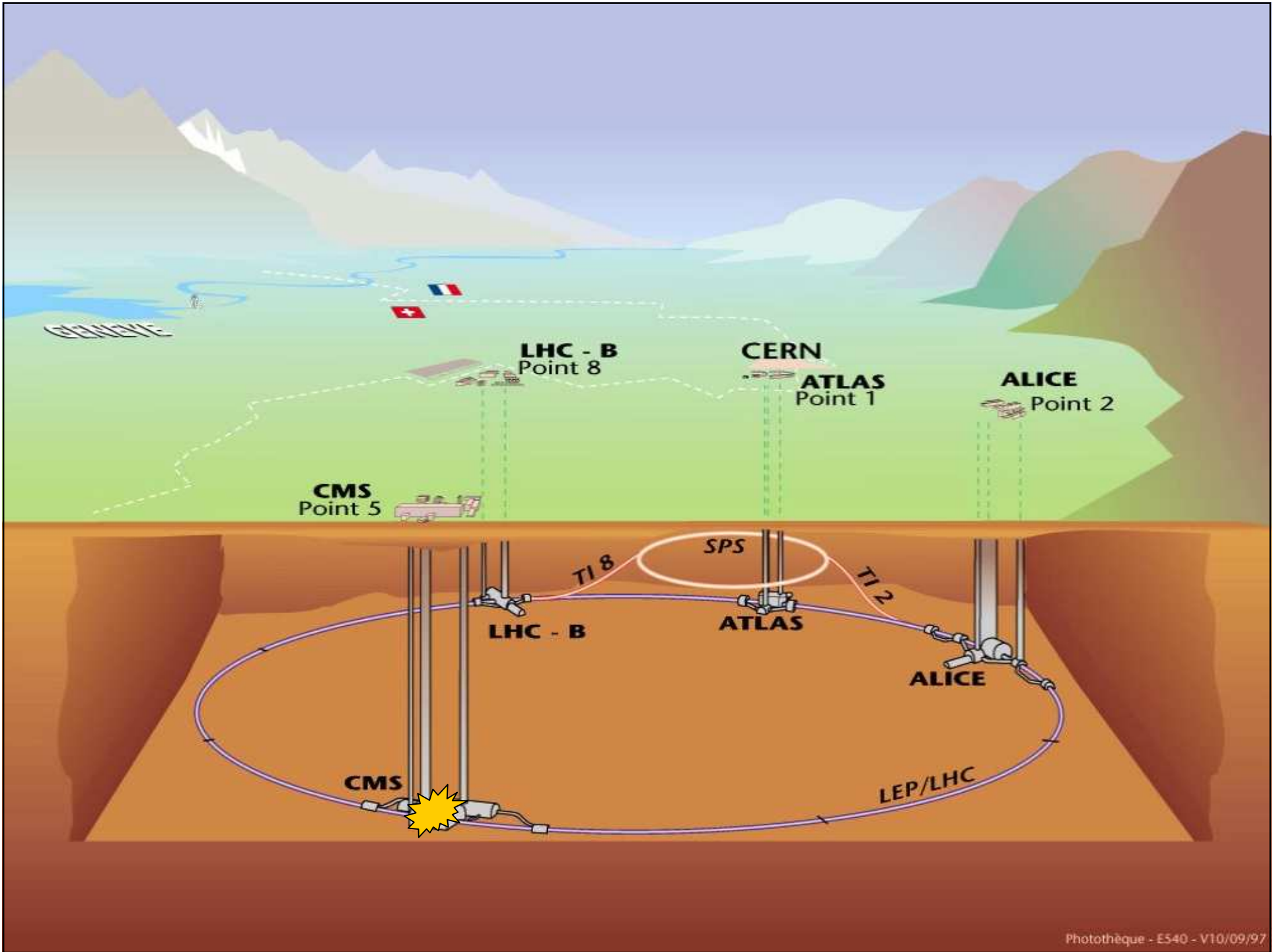
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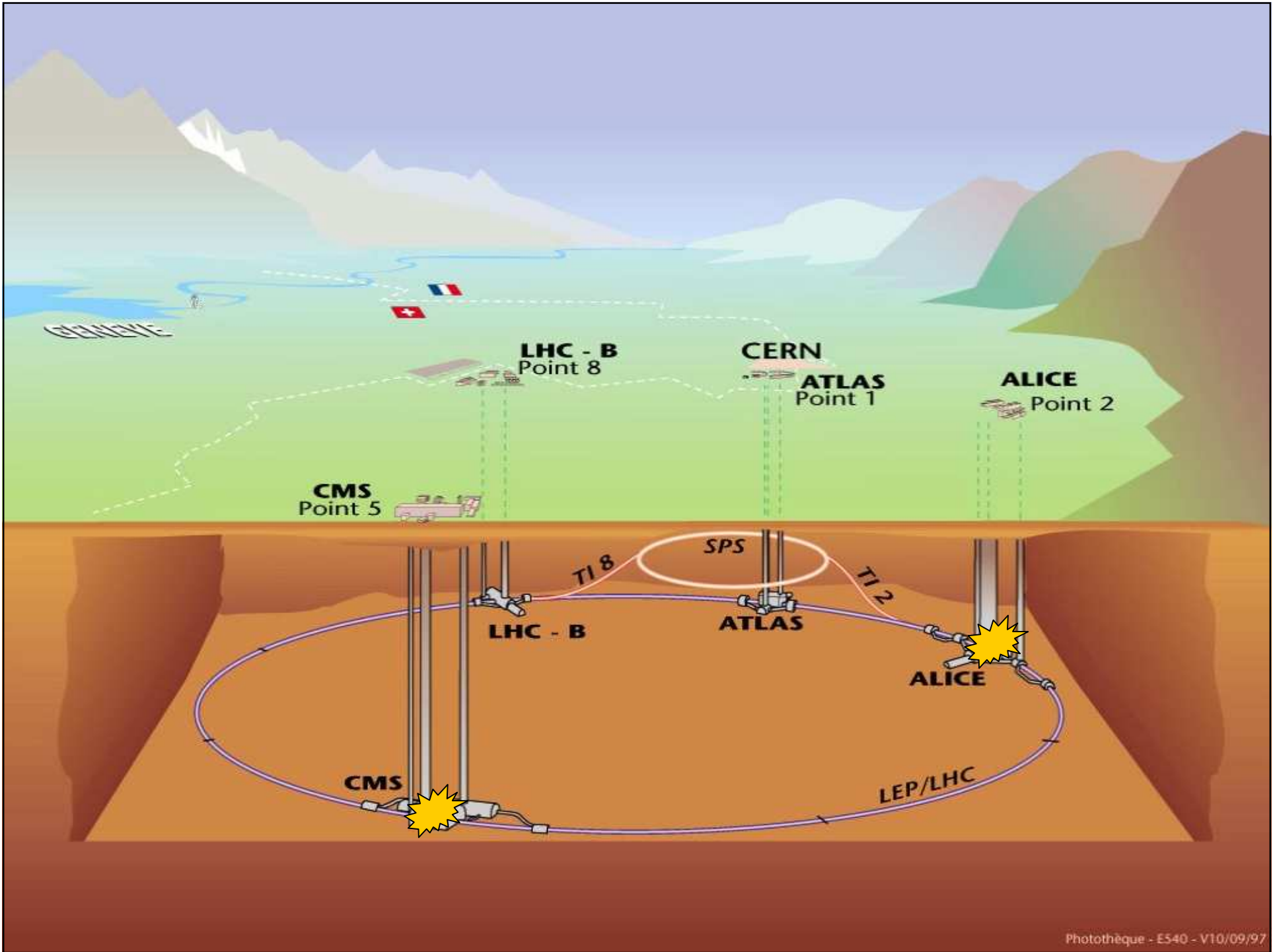


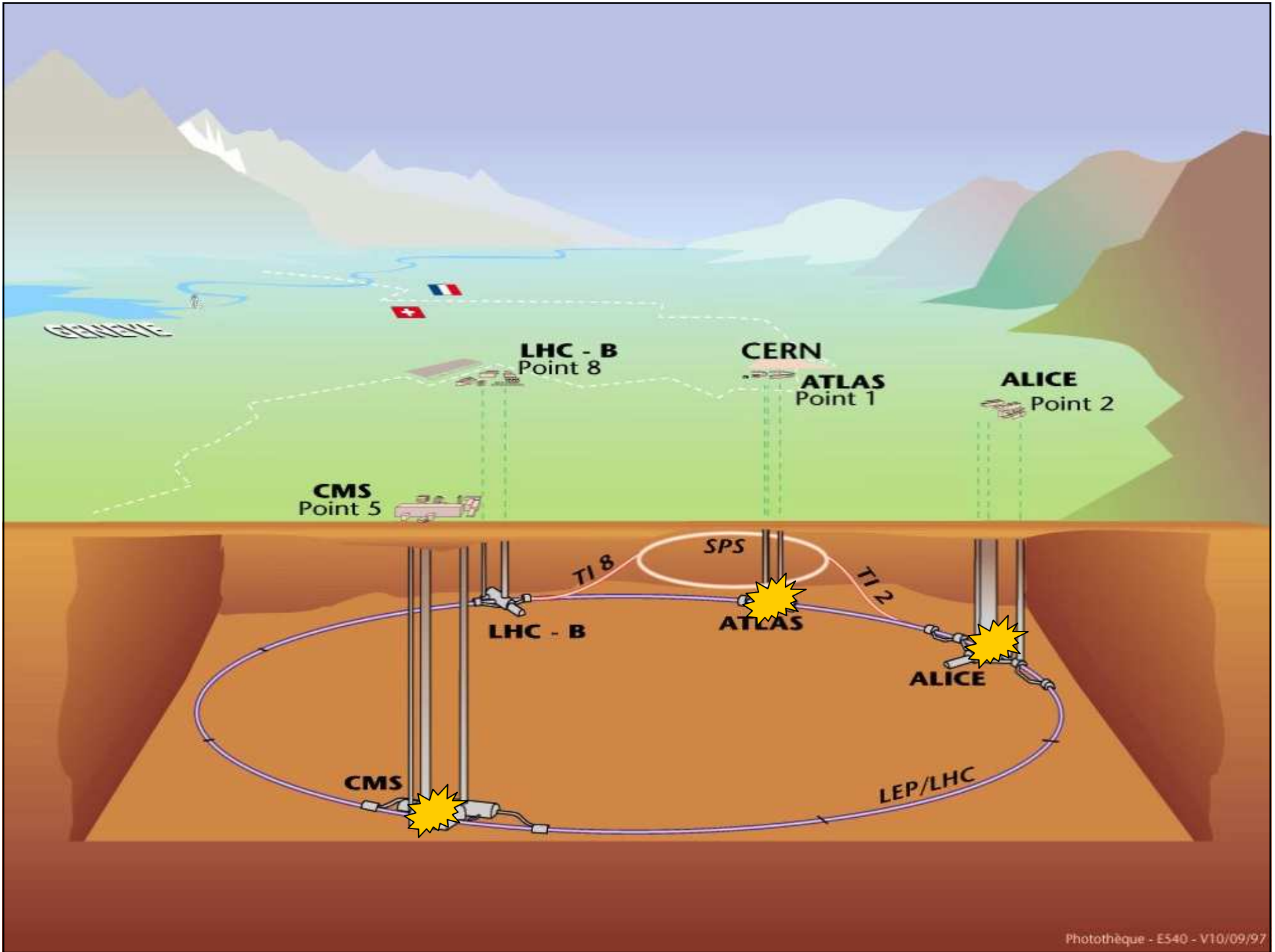
Collider

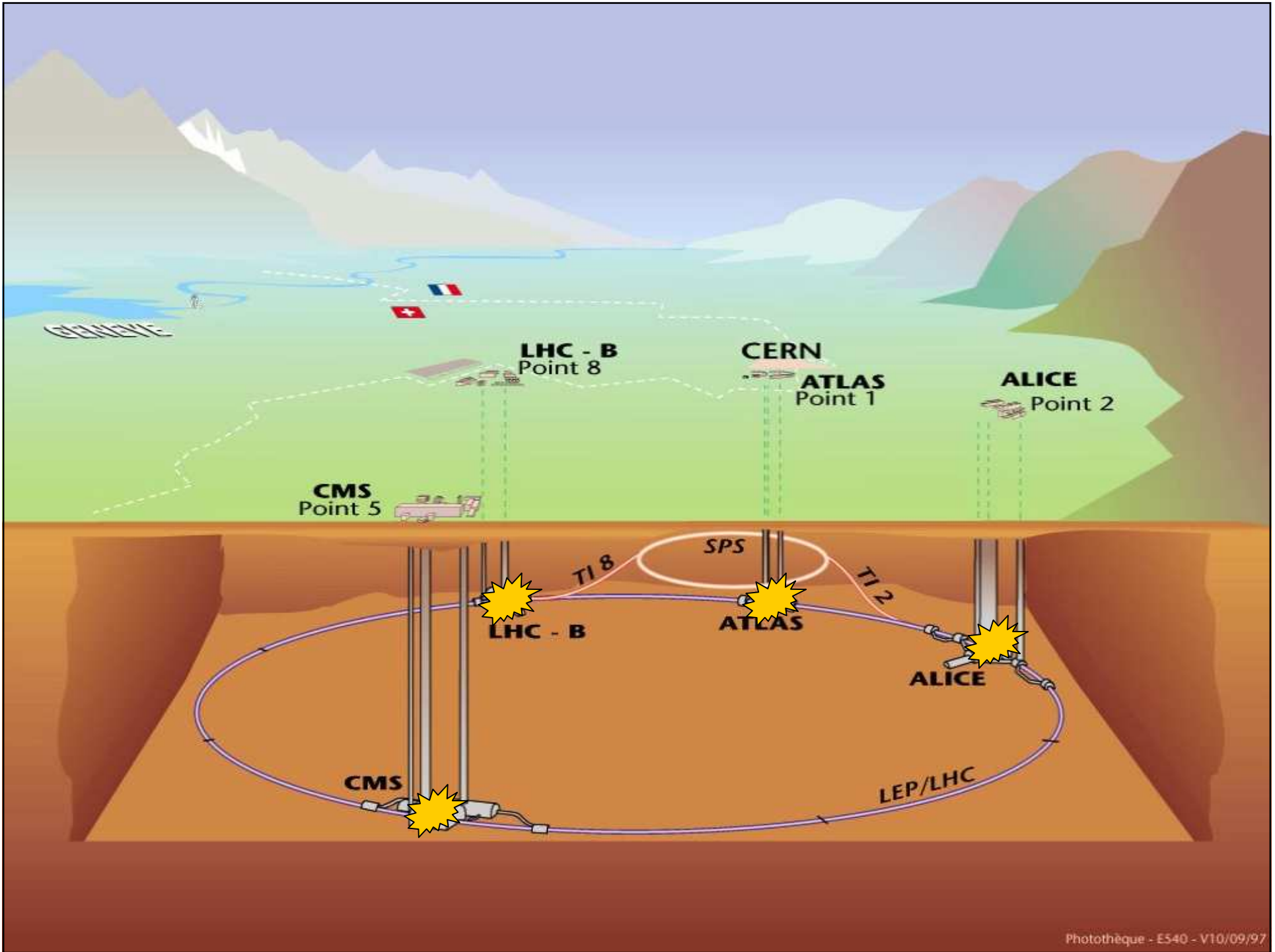


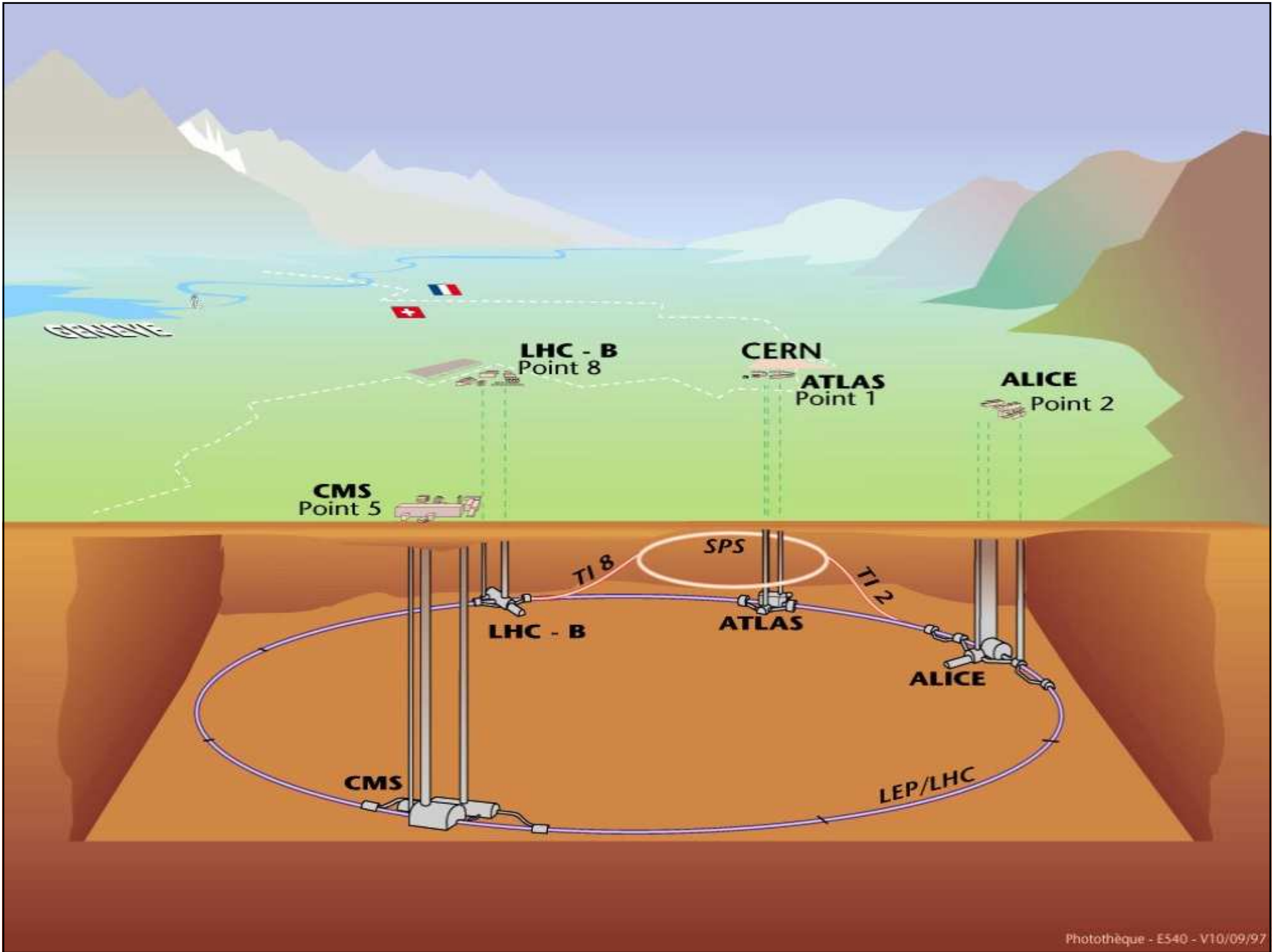




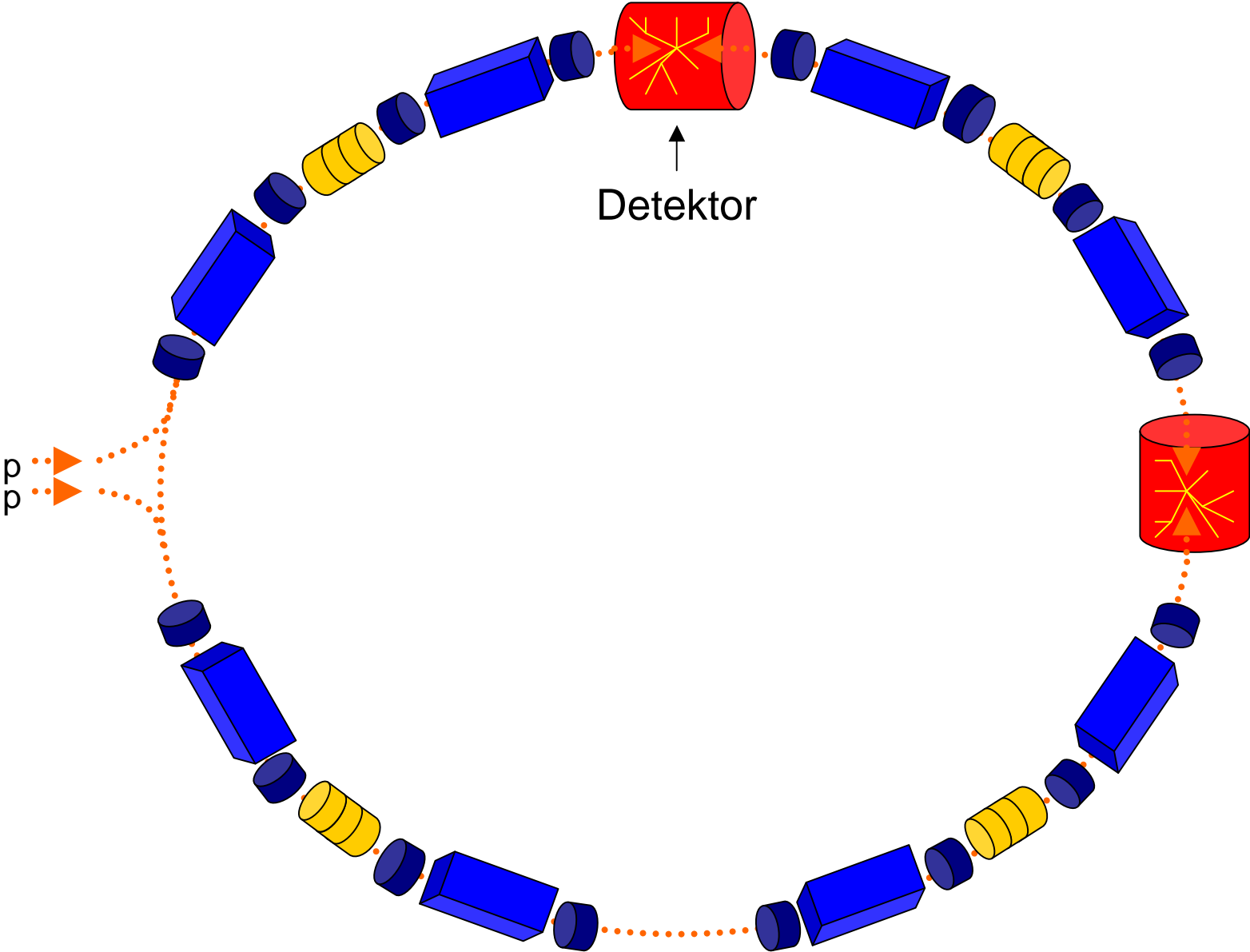




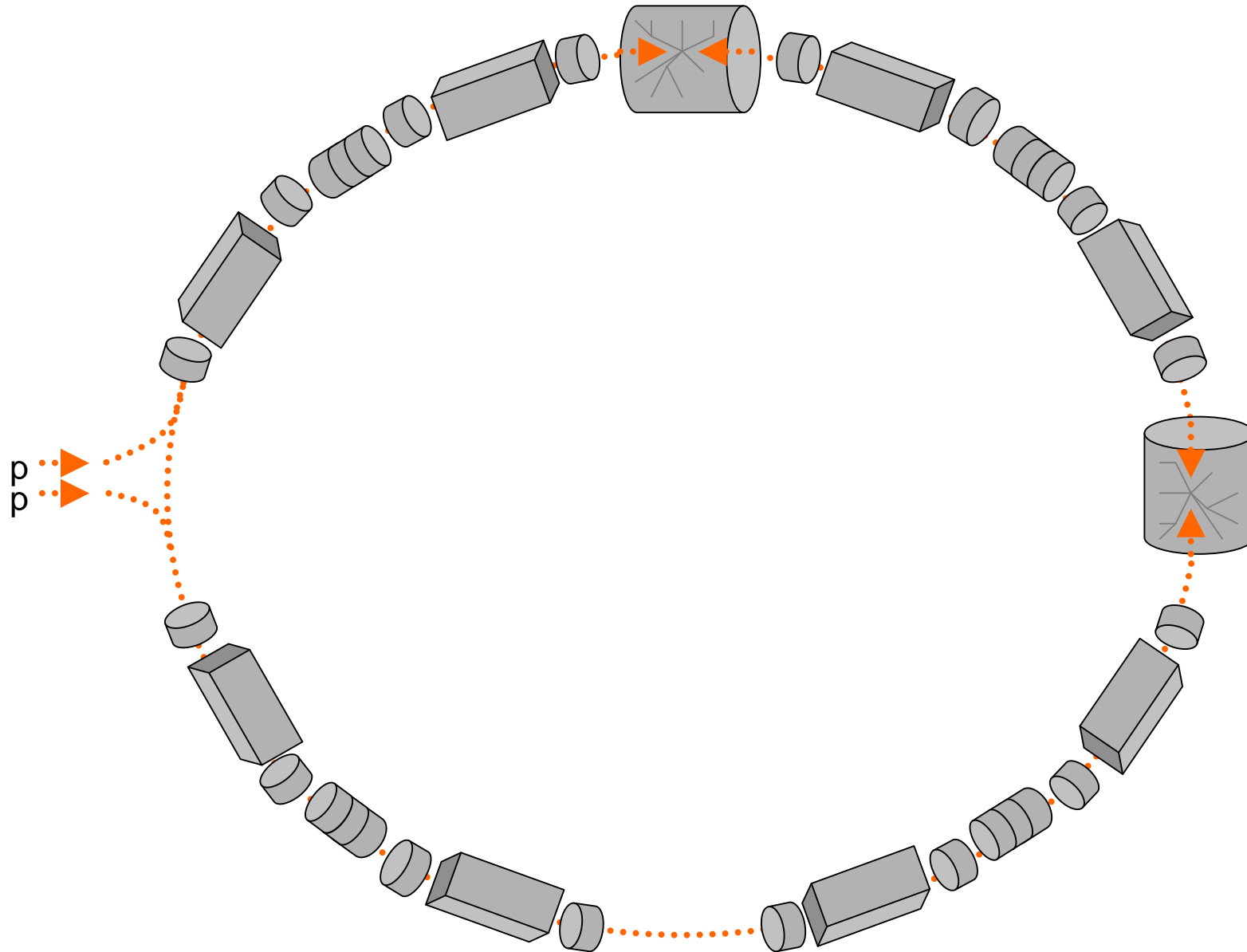




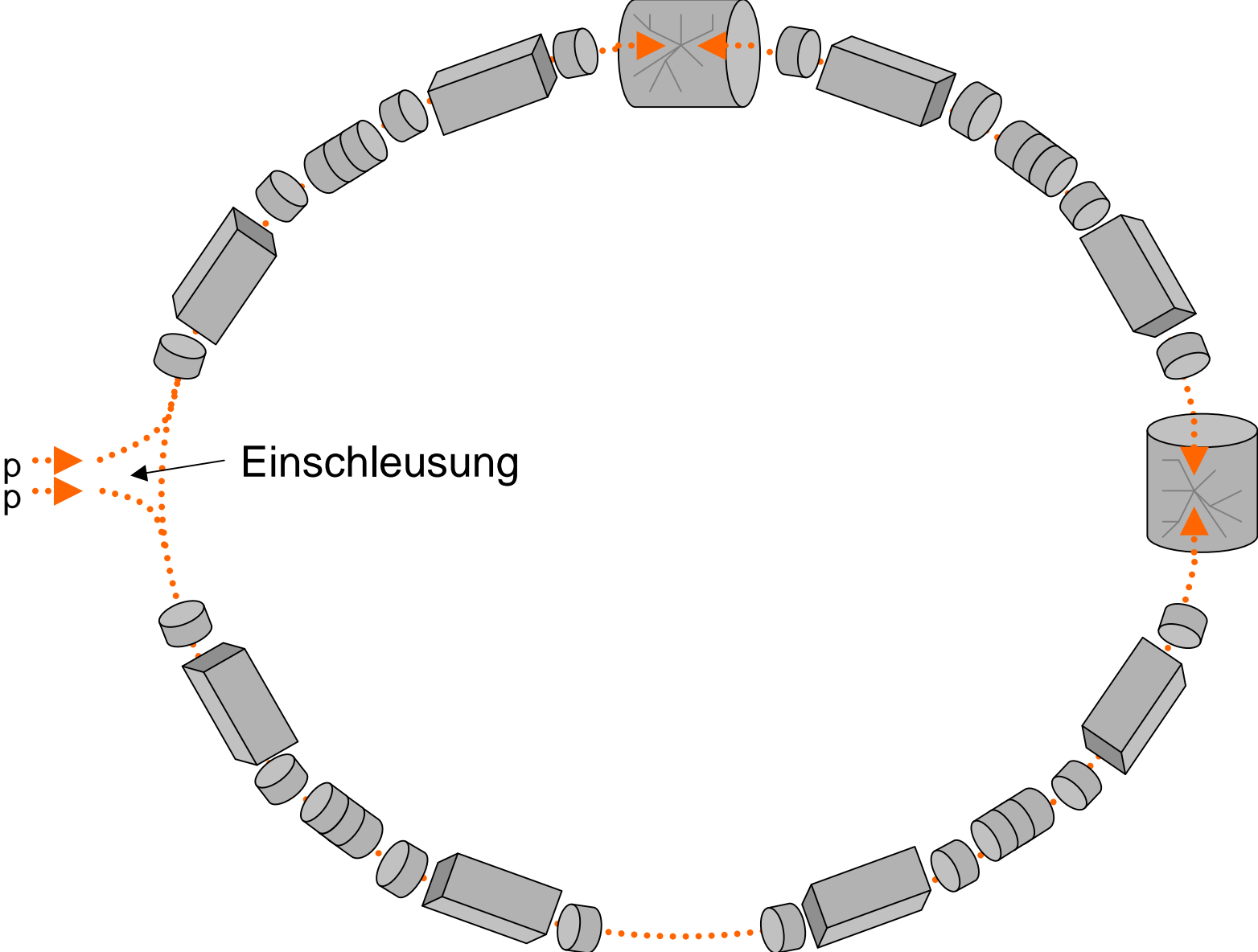
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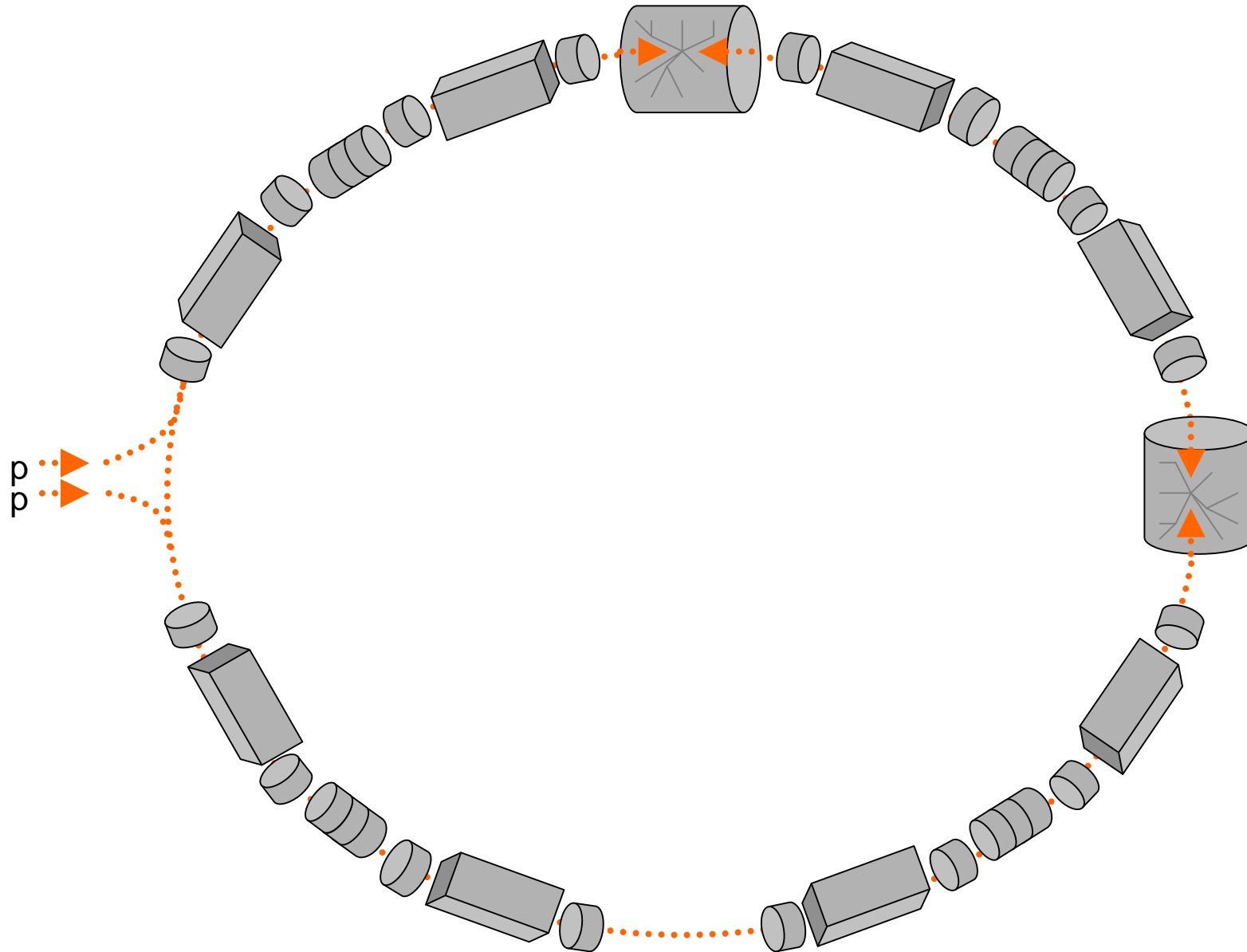
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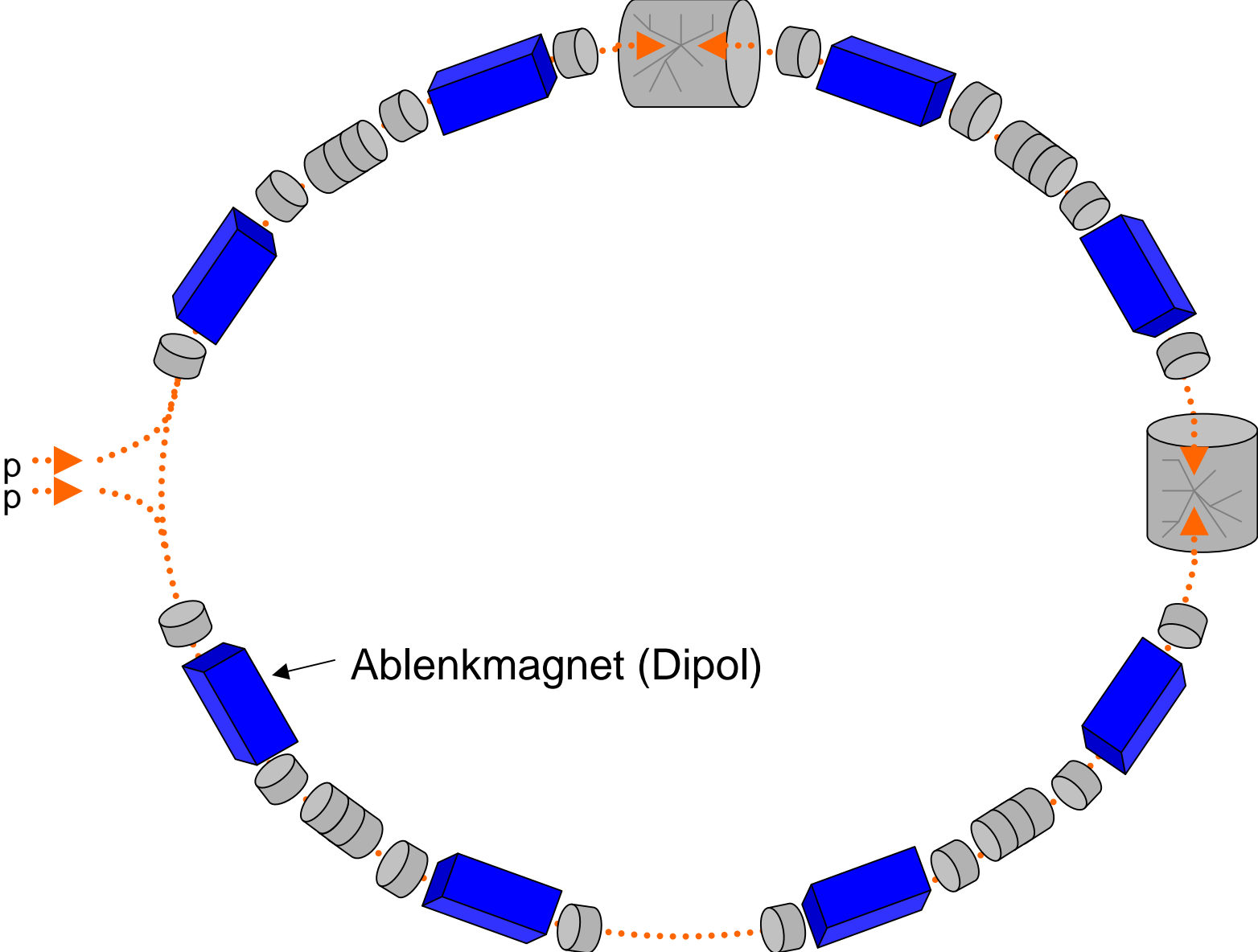
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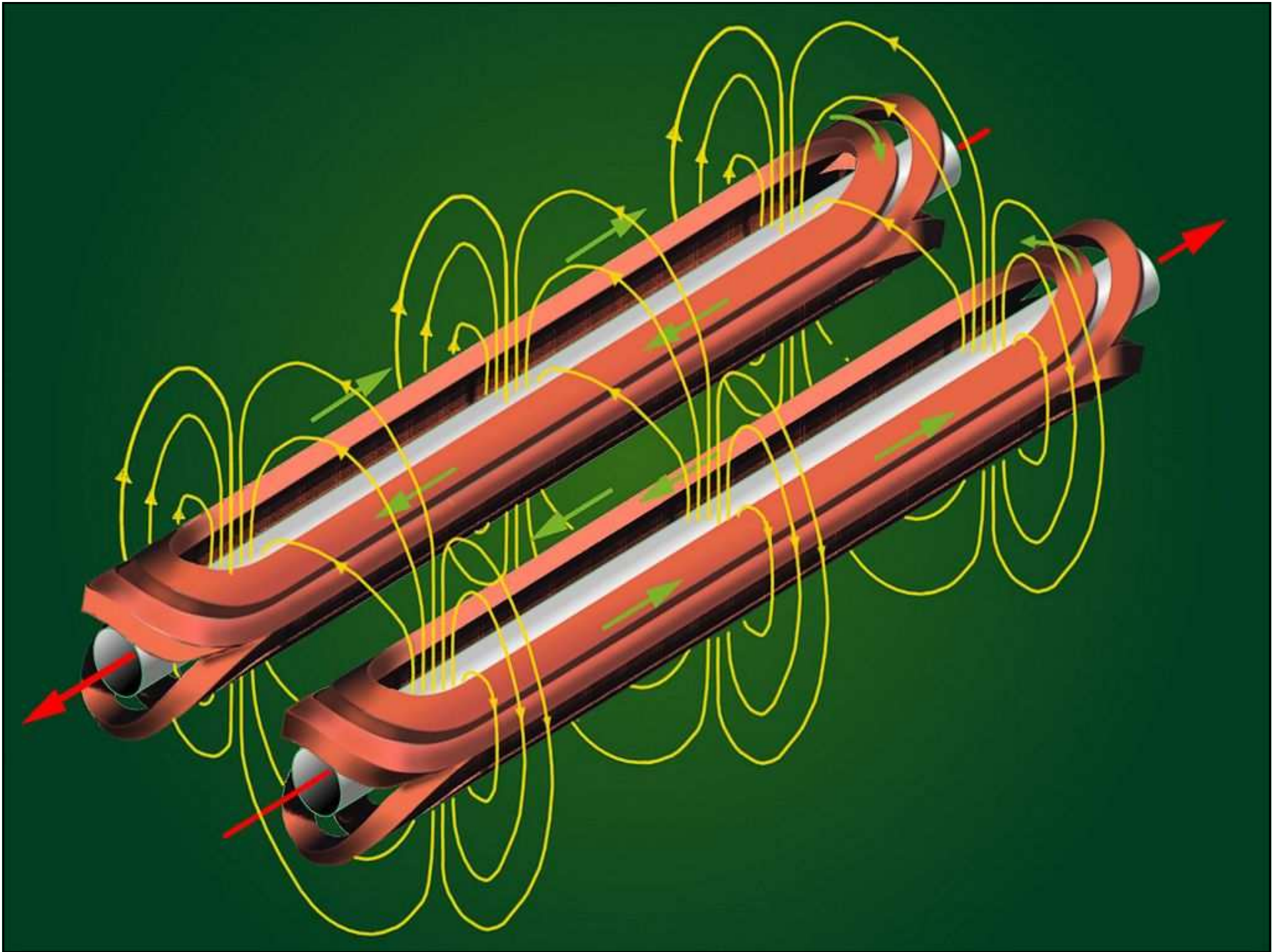


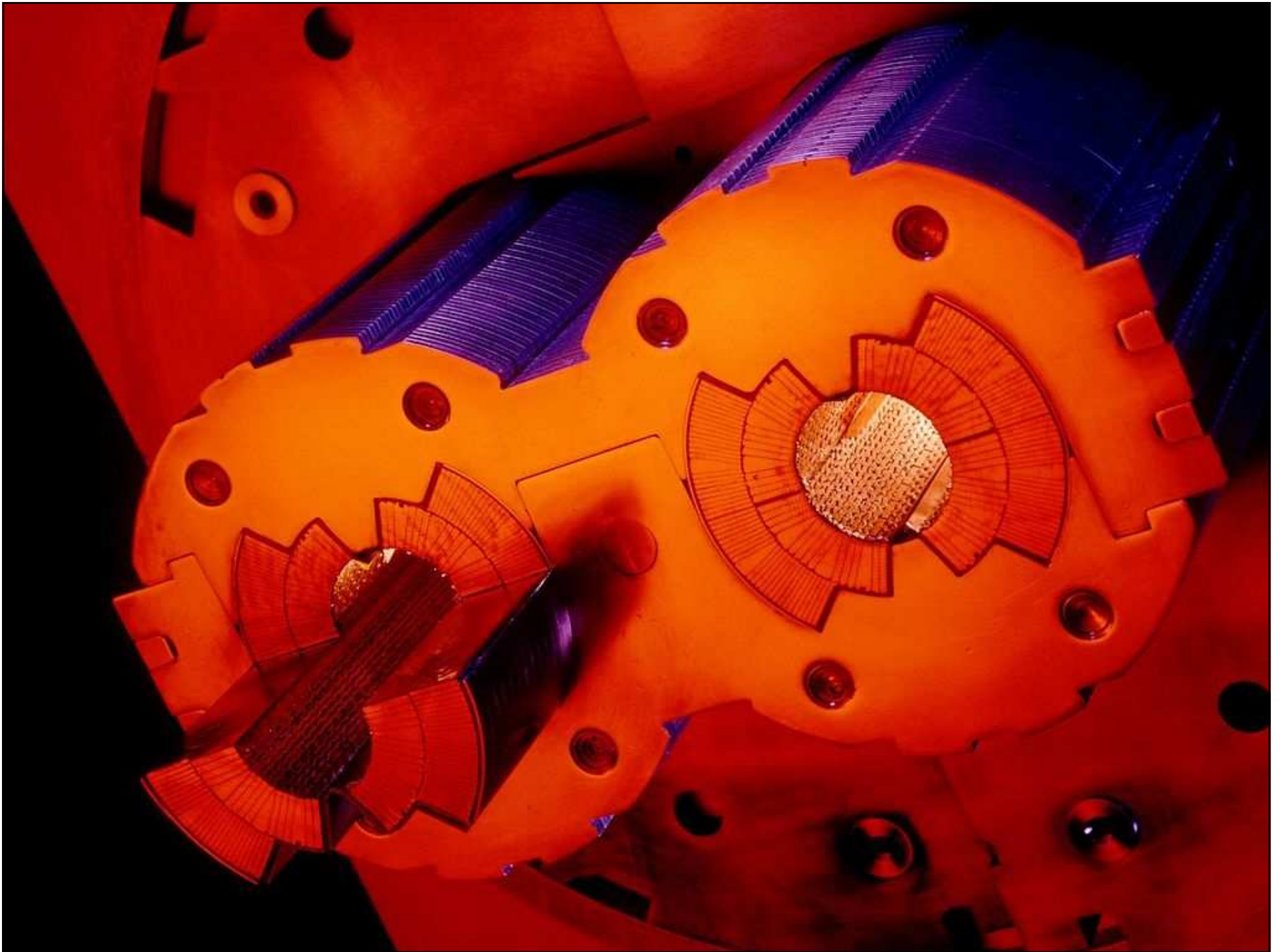
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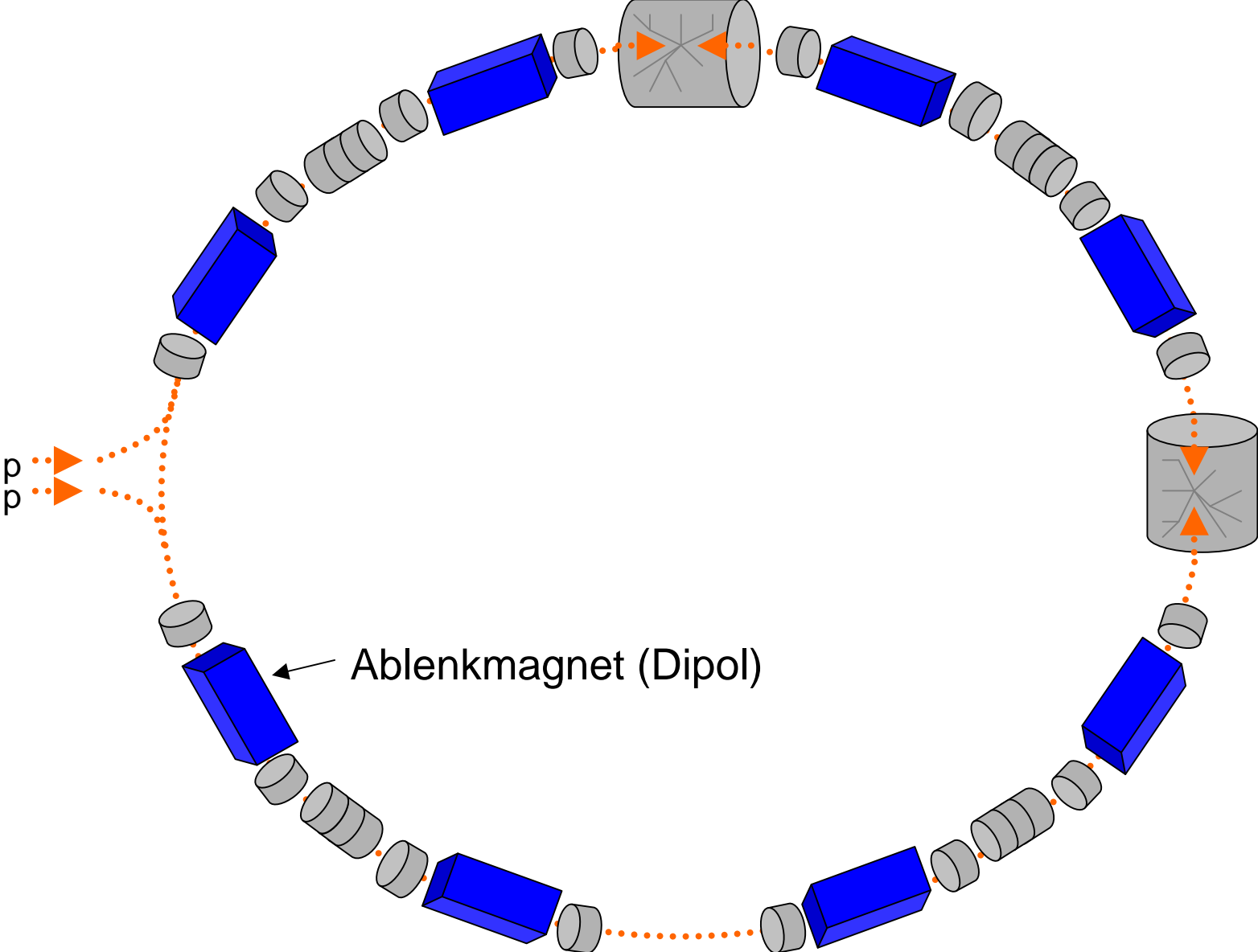
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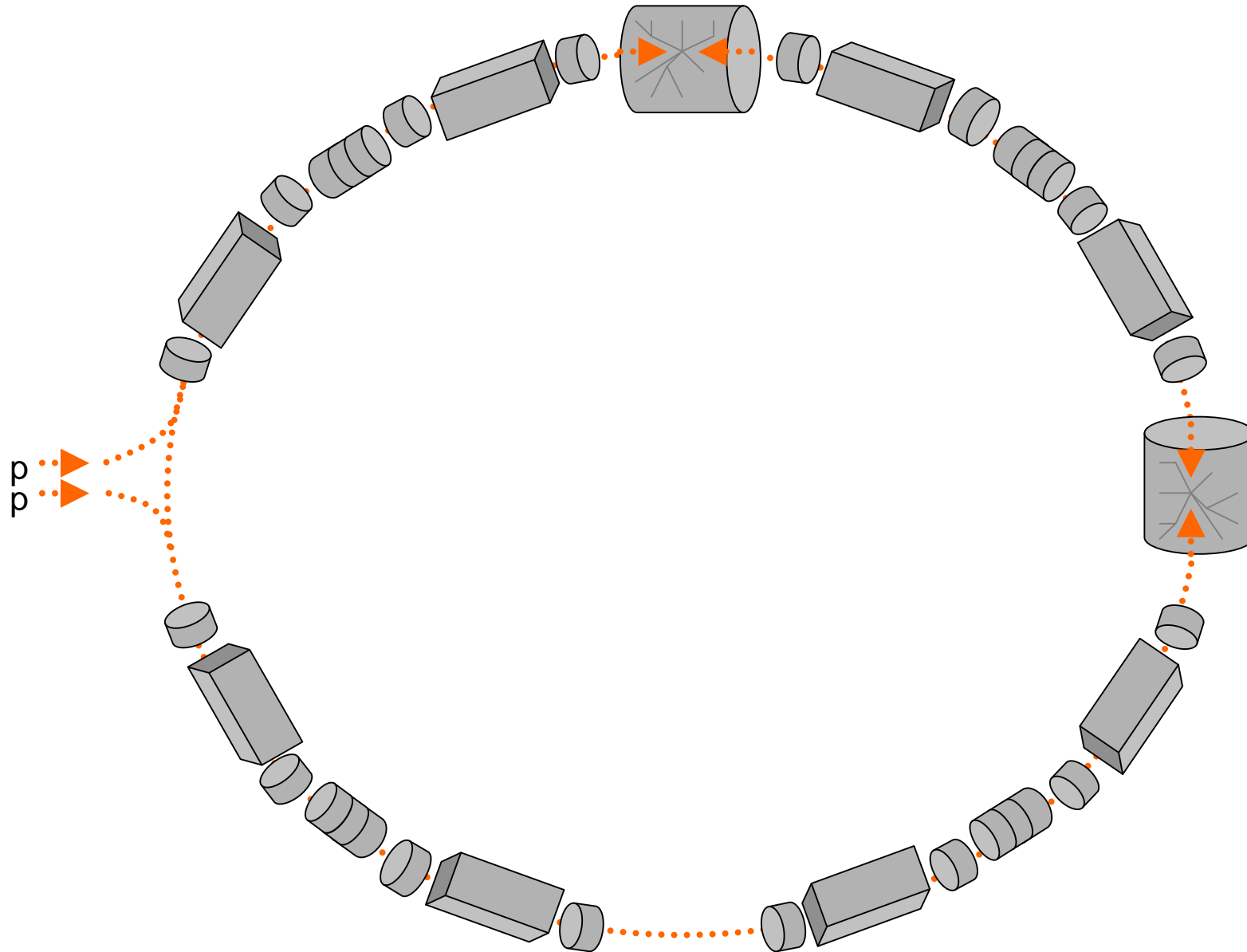




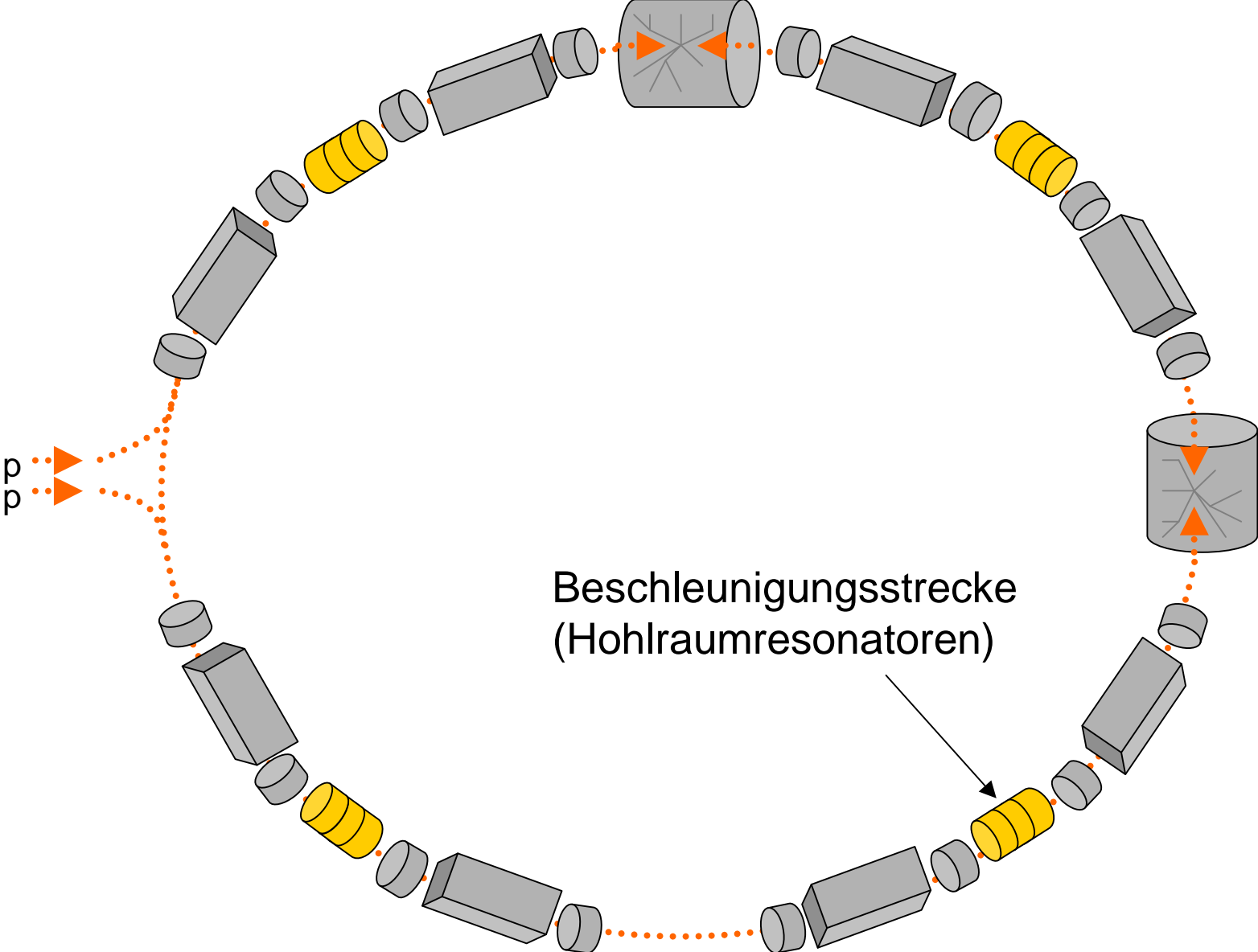
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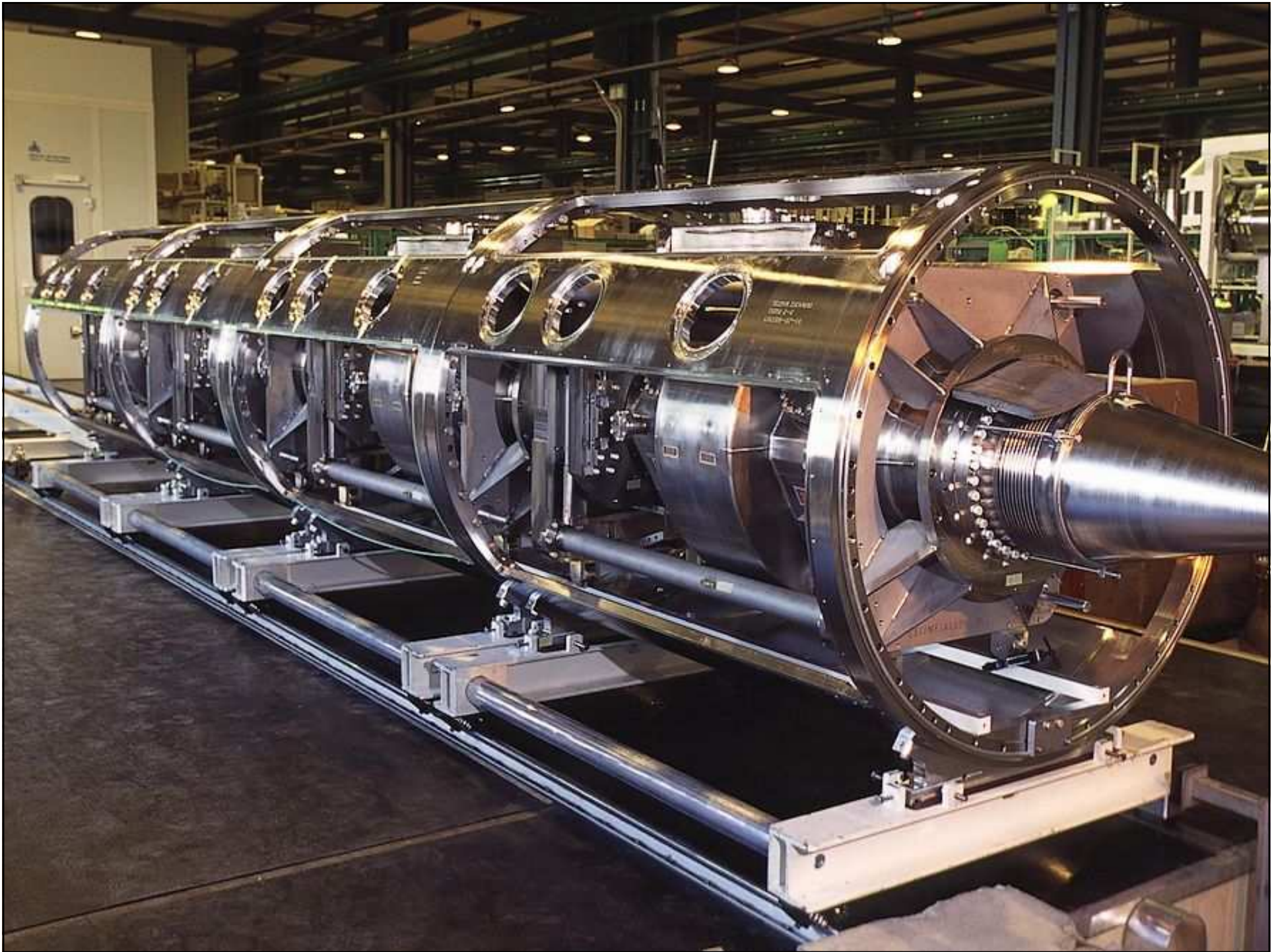
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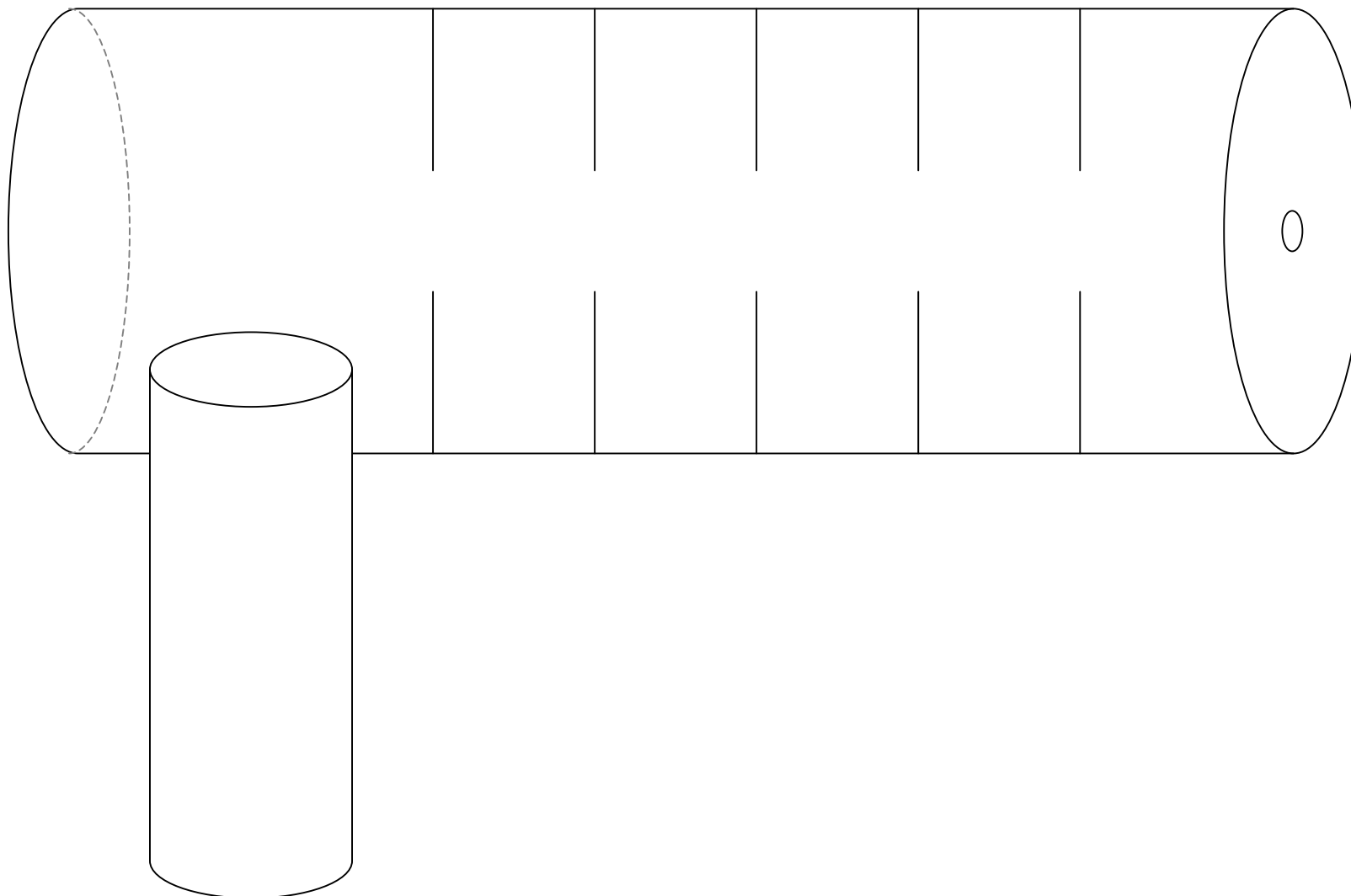
Collider



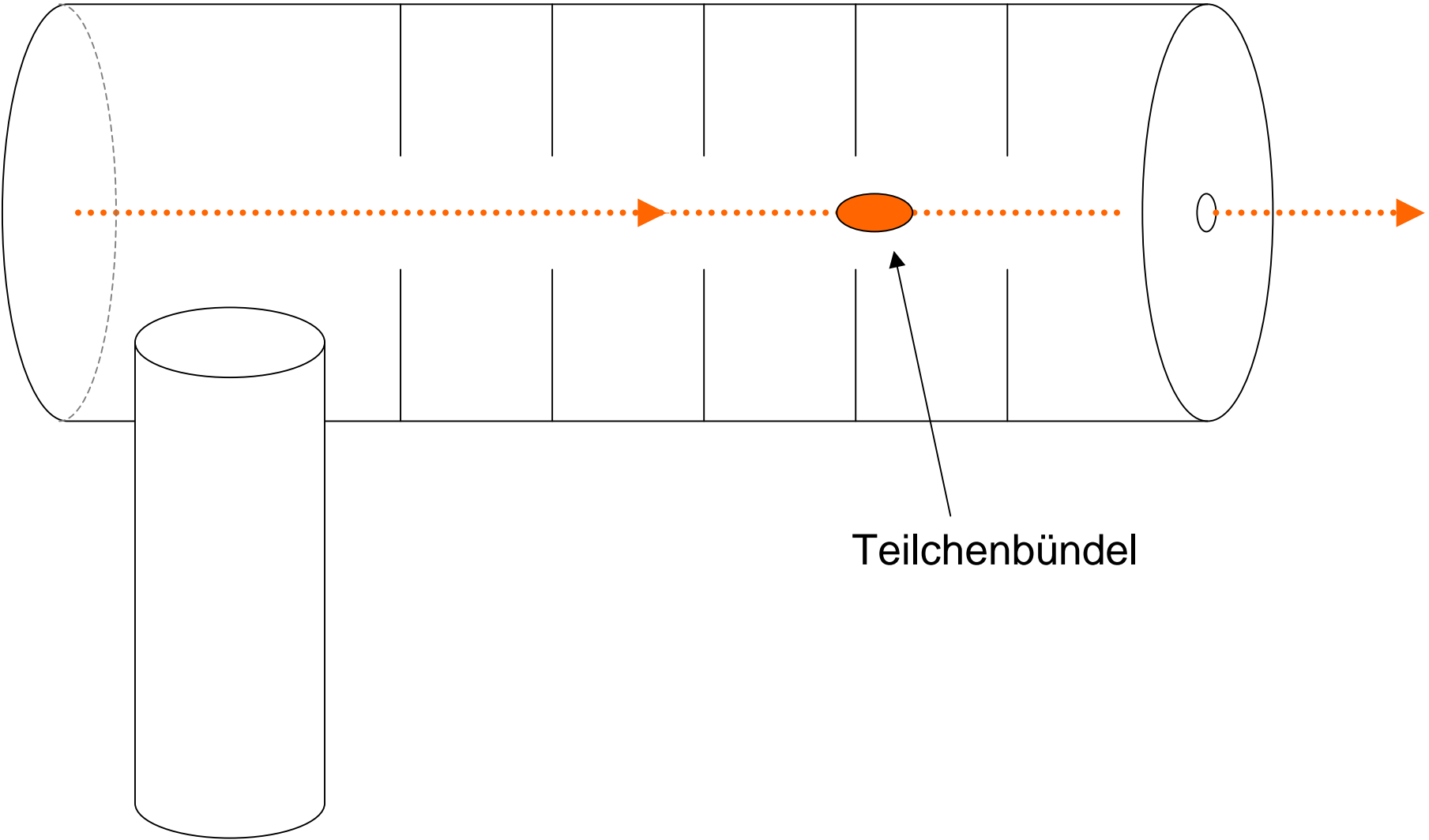




Hohlraumresonator

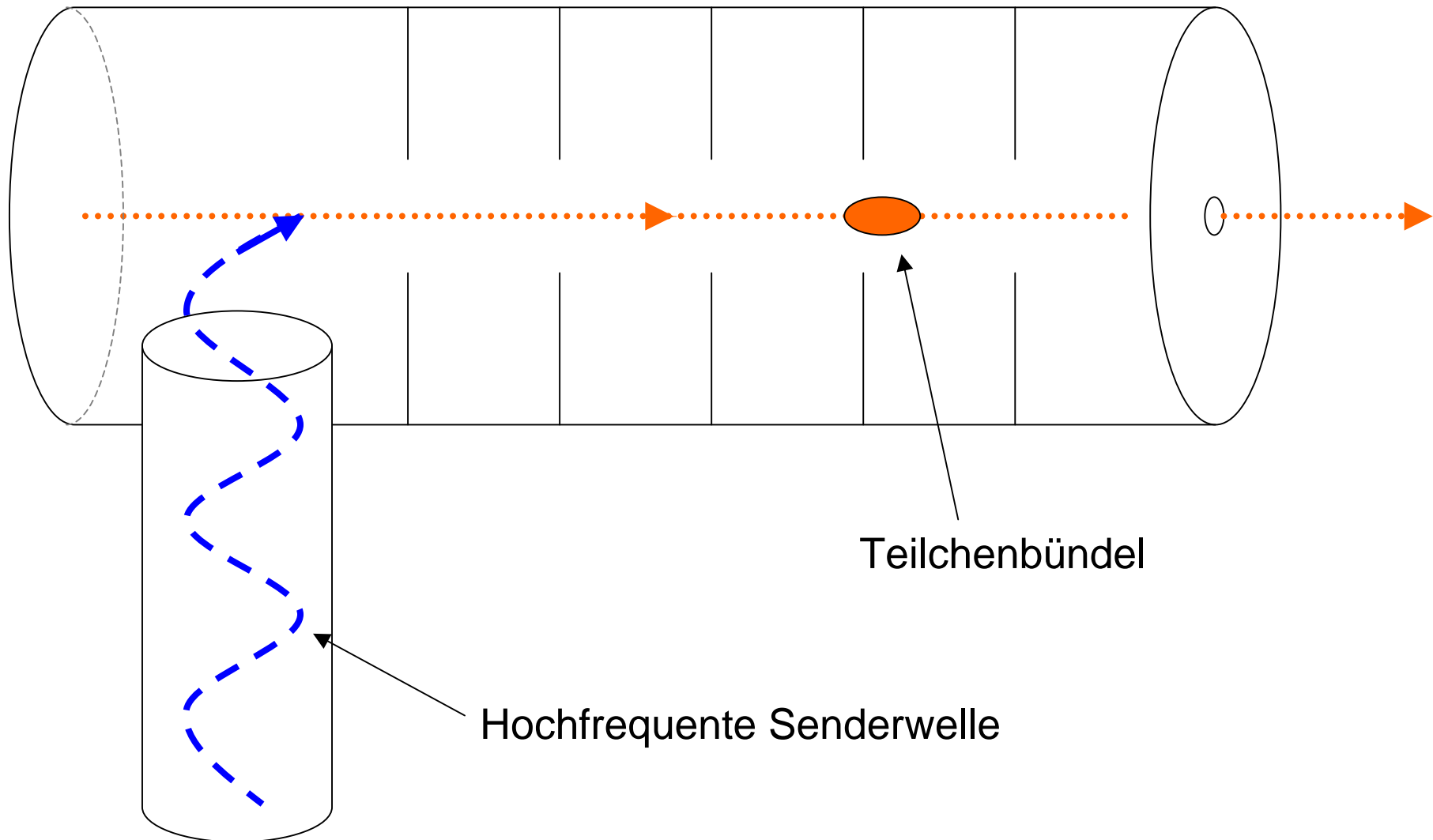


Hohlraumresonator

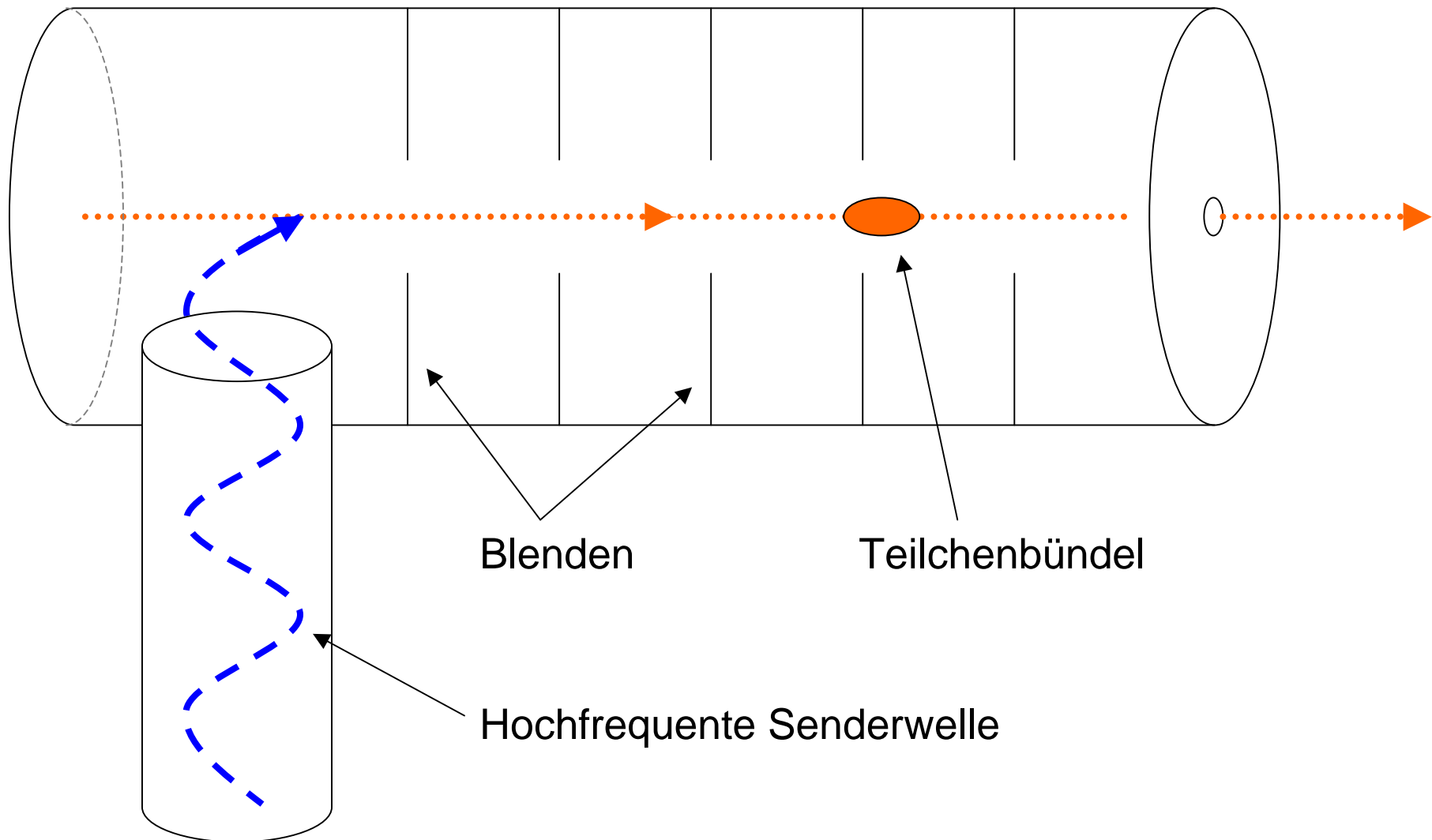


Teilchenbündel

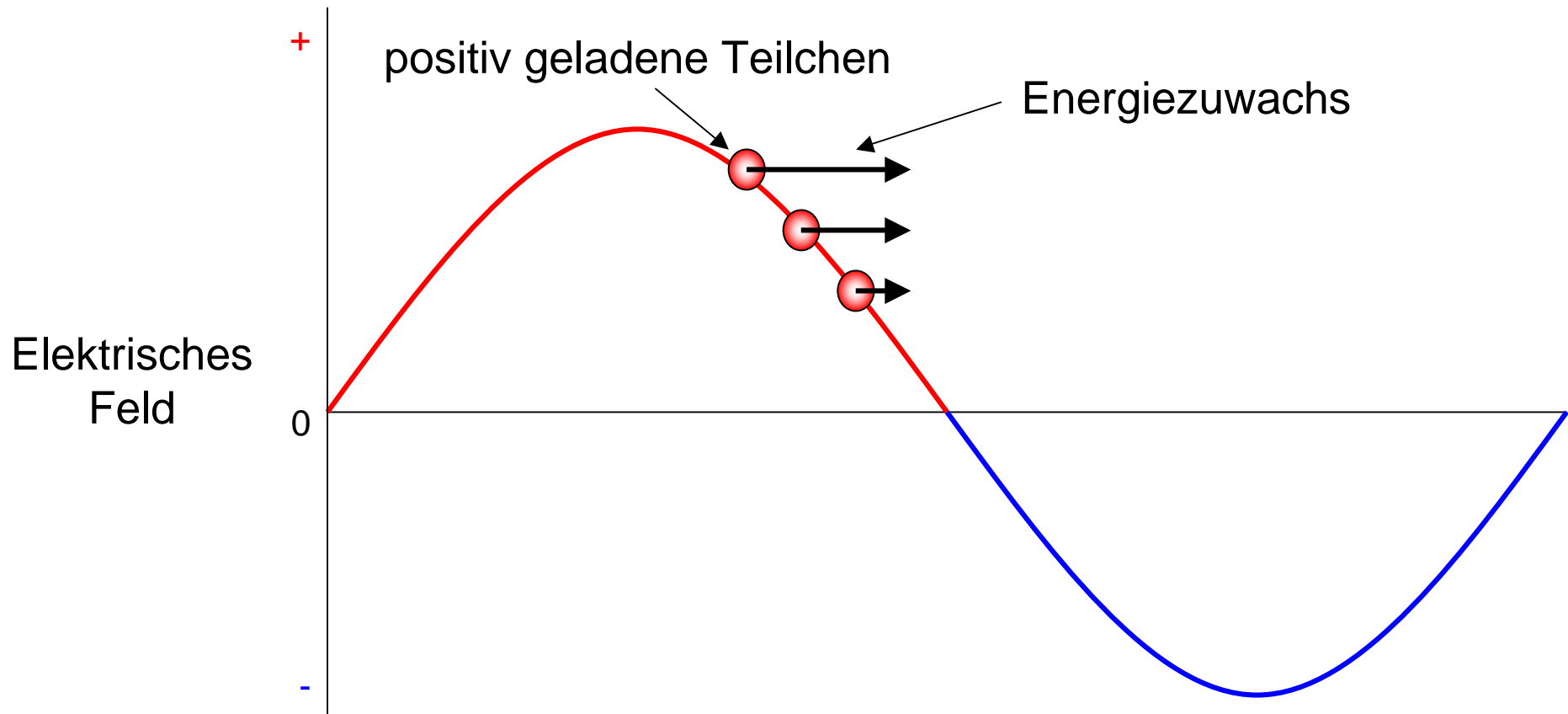
Hohlraumresonator



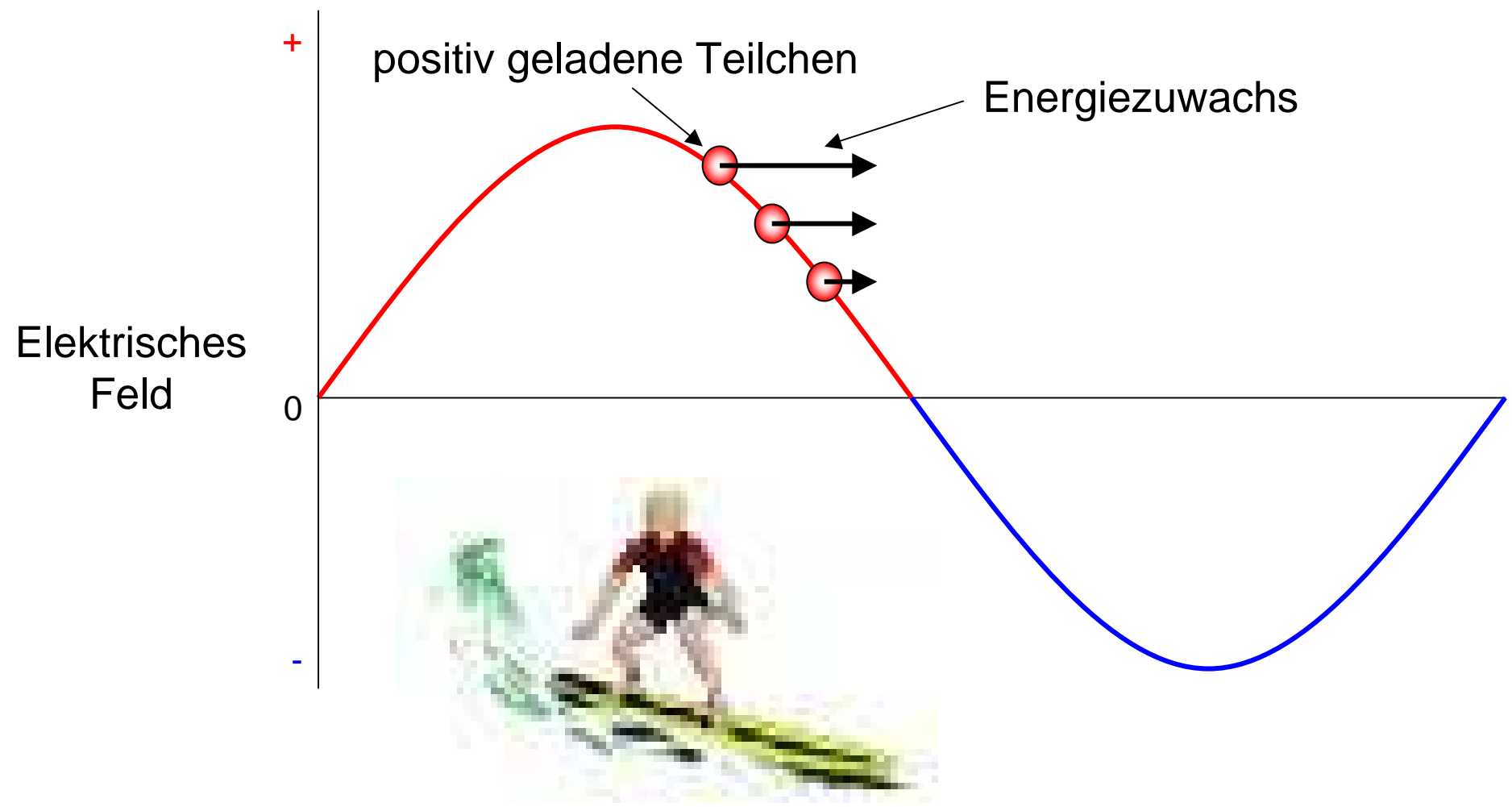
Hohlraumresonator



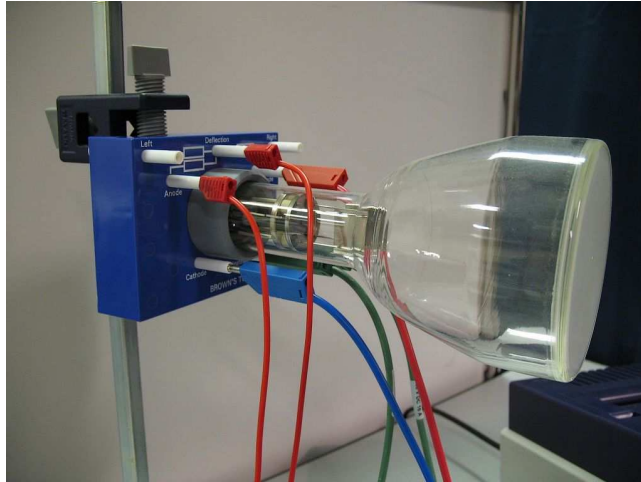
Hohlraumresonator



Hohlraumresonator



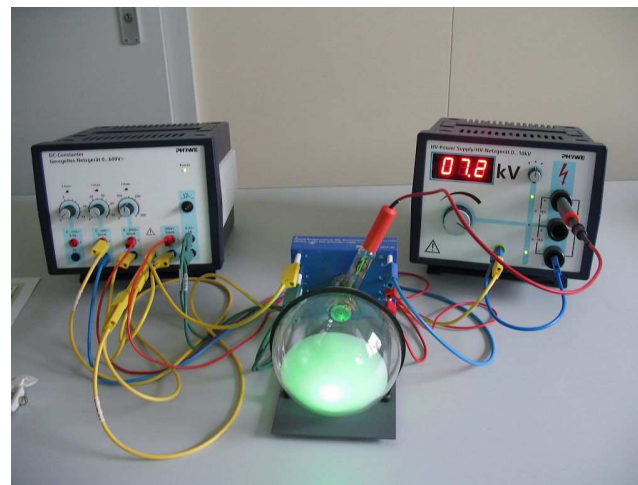
Vakuum



Braun'sche Röhre



Fadenstrahlröhre



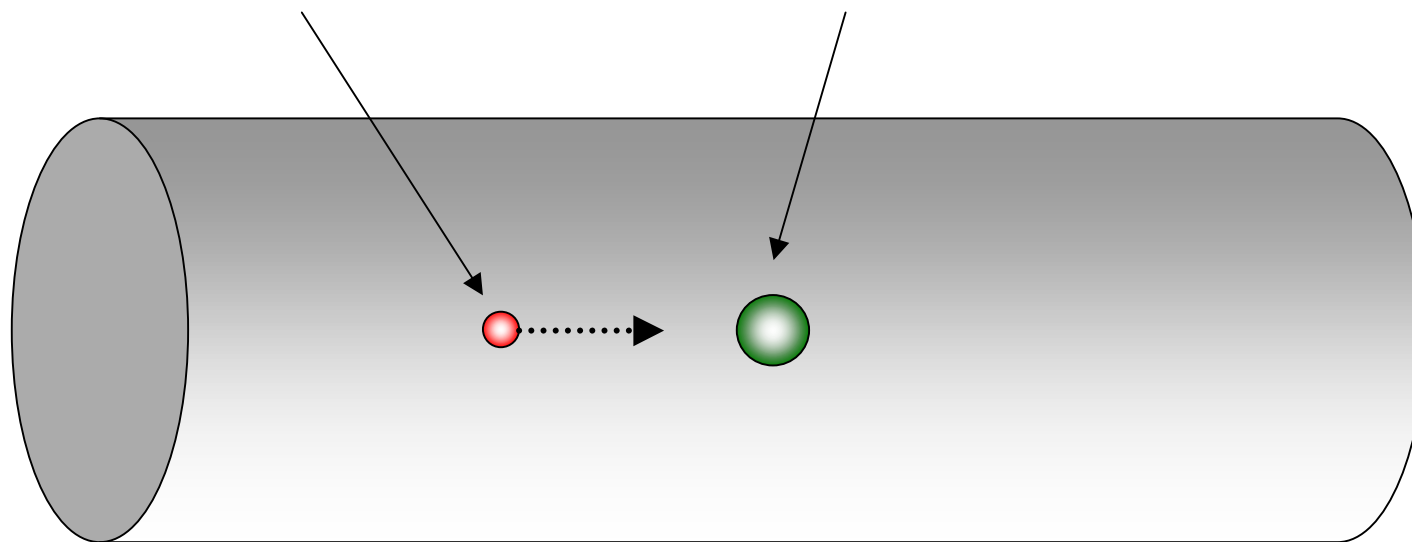
Elektronenbeugungsröhre

Vakuum



Beschleunigtes Teilchen

Gasatom



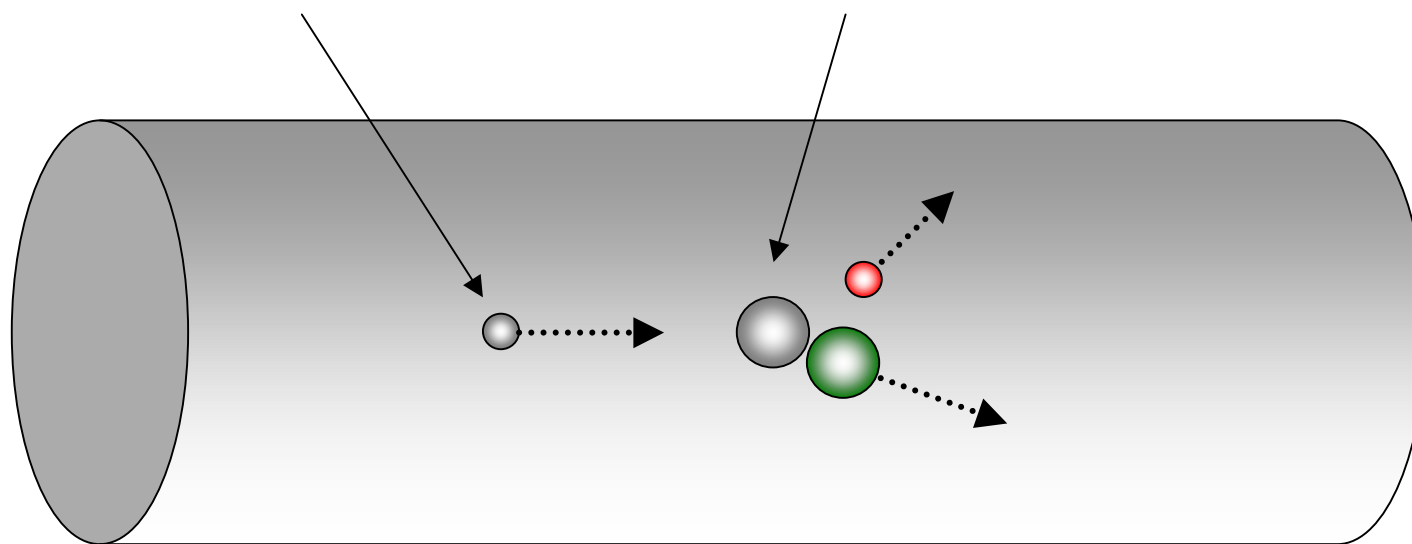
Strahlrohr

Vakuum



Beschleunigtes Teilchen

Gasatom



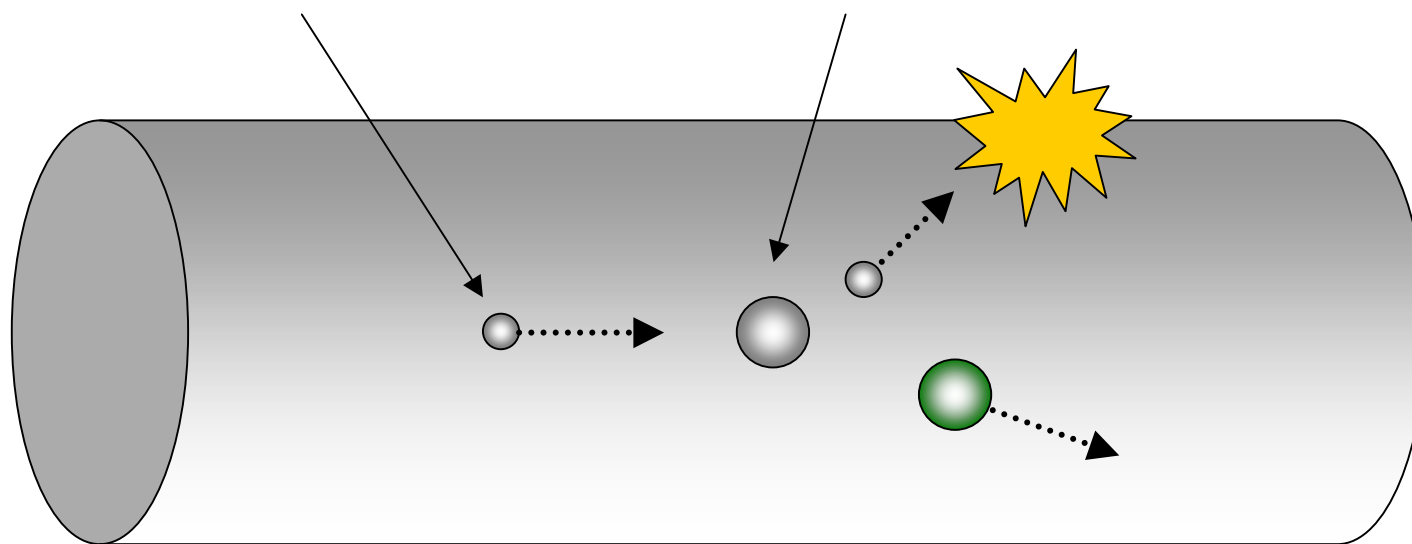
Strahlrohr

Vakuum



Beschleunigtes Teilchen

Gasatom

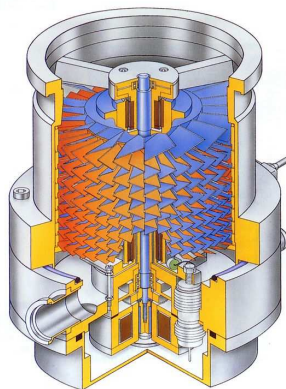


Strahlrohr

Vakuum



Vakuumbereich	Druck [bar]	Moleküle / cm ³	Freie Weglänge	Beispiele
Großvakuum	1...10 ⁻³	10 ¹⁹ ...10 ¹⁶	0,1...100 µm	Staubsauger
Feinvakuum	10 ⁻³ ...10 ⁻⁶	10 ¹⁶ ...10 ¹³	0,1...100 mm	Gasentladungslampen
Hochvakuum	10 ⁻⁶ ...10 ⁻¹⁰	10 ¹³ ...10 ⁹	10 cm...1 km	Elektronenröhren
Ultrahochvakuum	10 ⁻¹⁰ ...10 ⁻¹⁵	10 ⁹ ...10 ⁴	1 km ... 10 ⁵ km	Teilchenbeschleuniger
extr. UHV	< 10 ⁻¹⁵	< 10 ⁴	> 10 ⁵ km	Weltraum

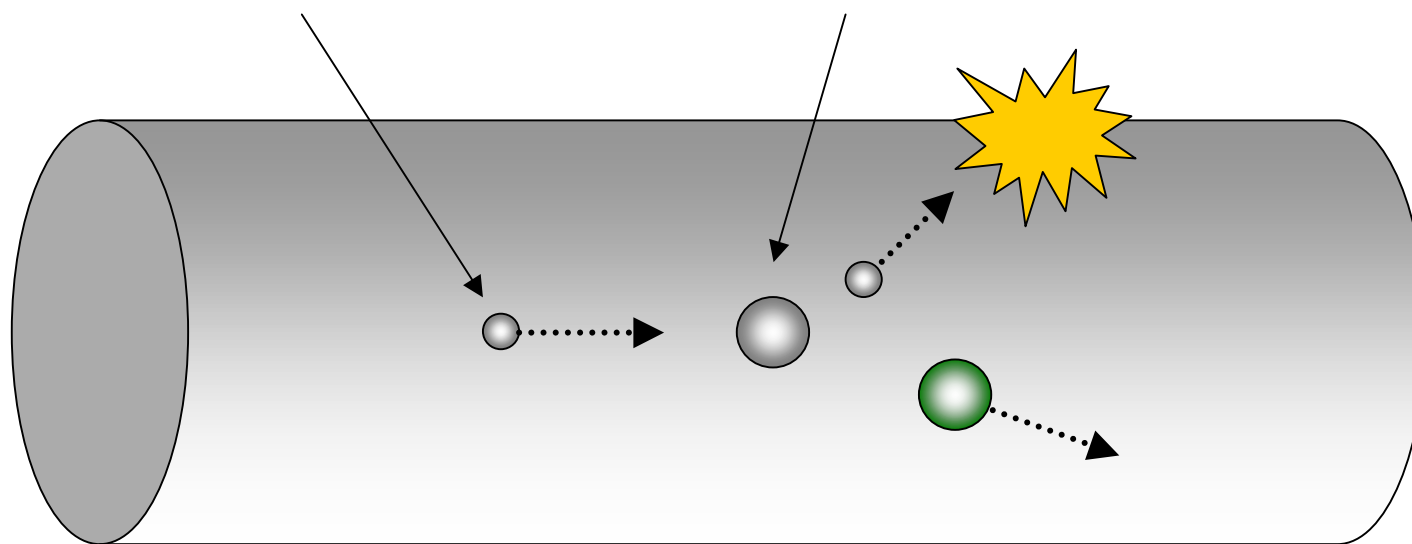


Vakuum



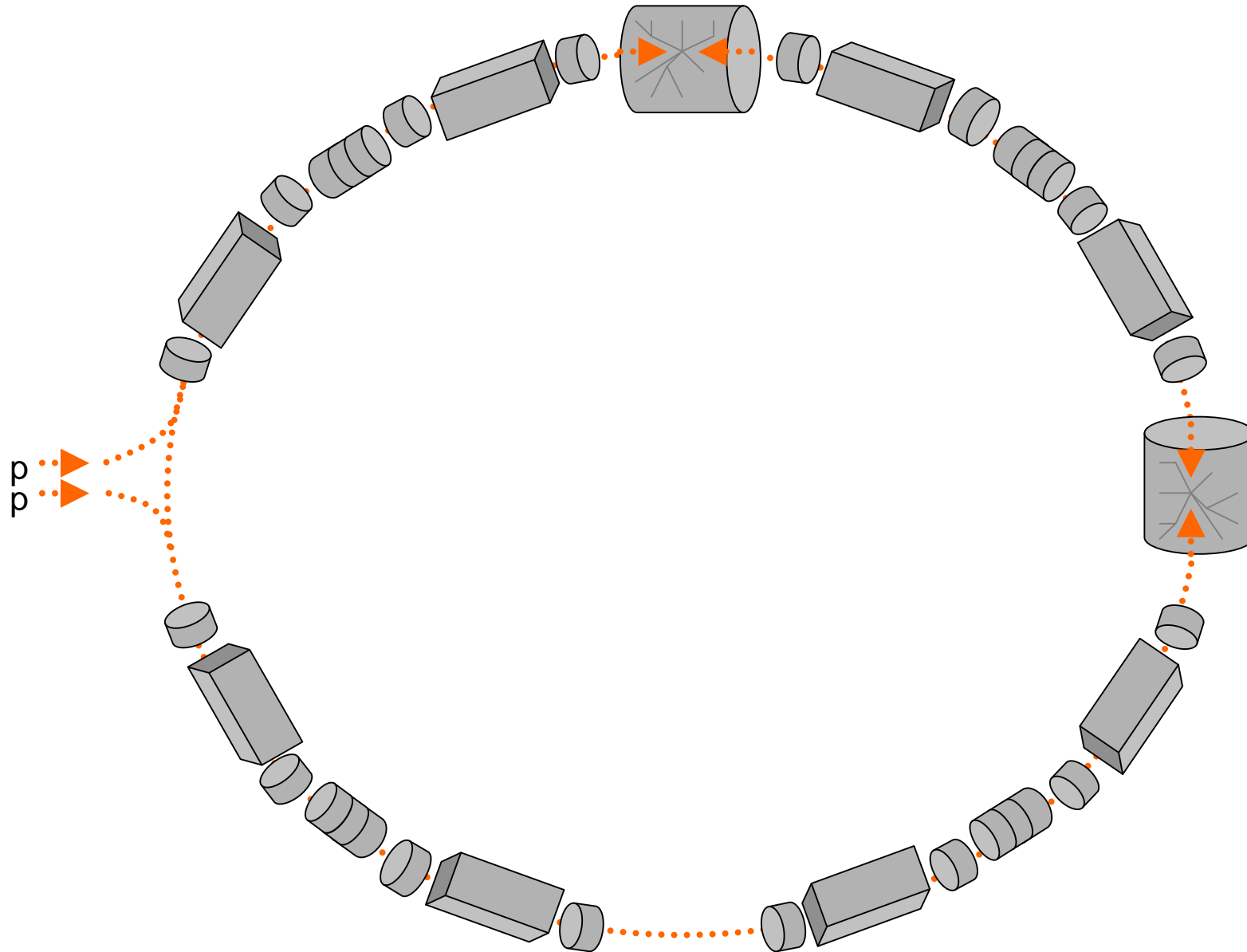
Beschleunigtes Teilchen

Gasatom

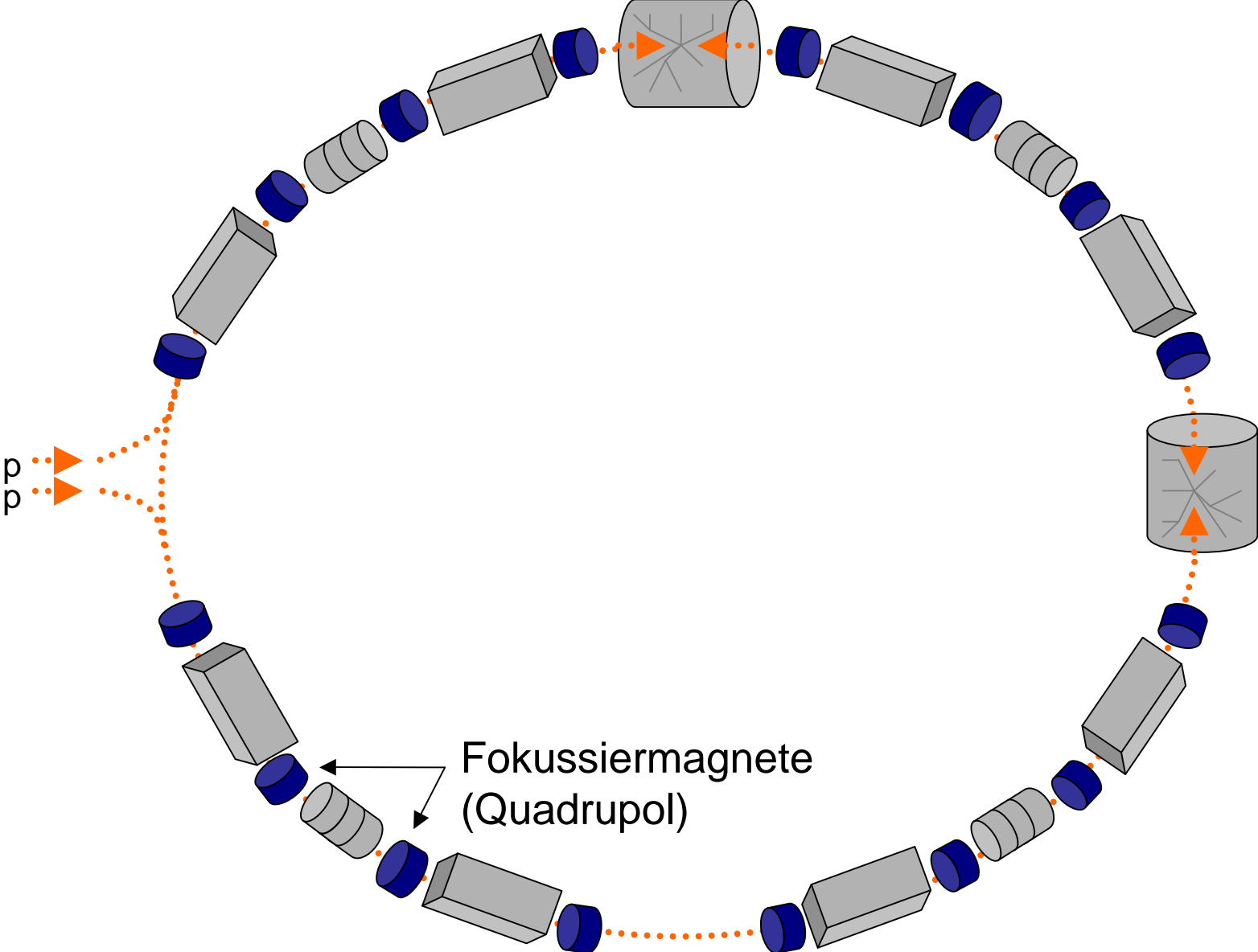


Strahlrohr

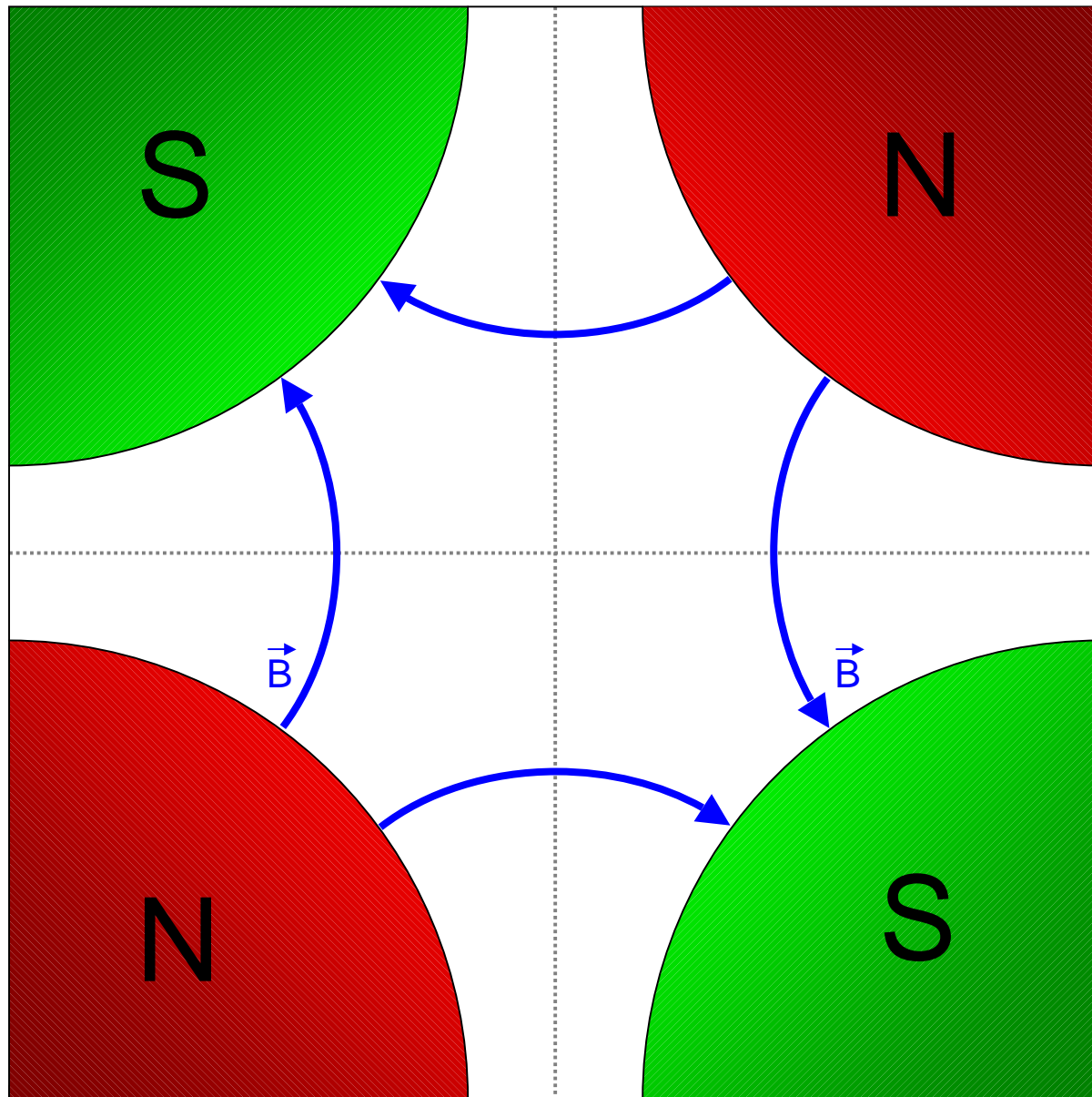
Collider



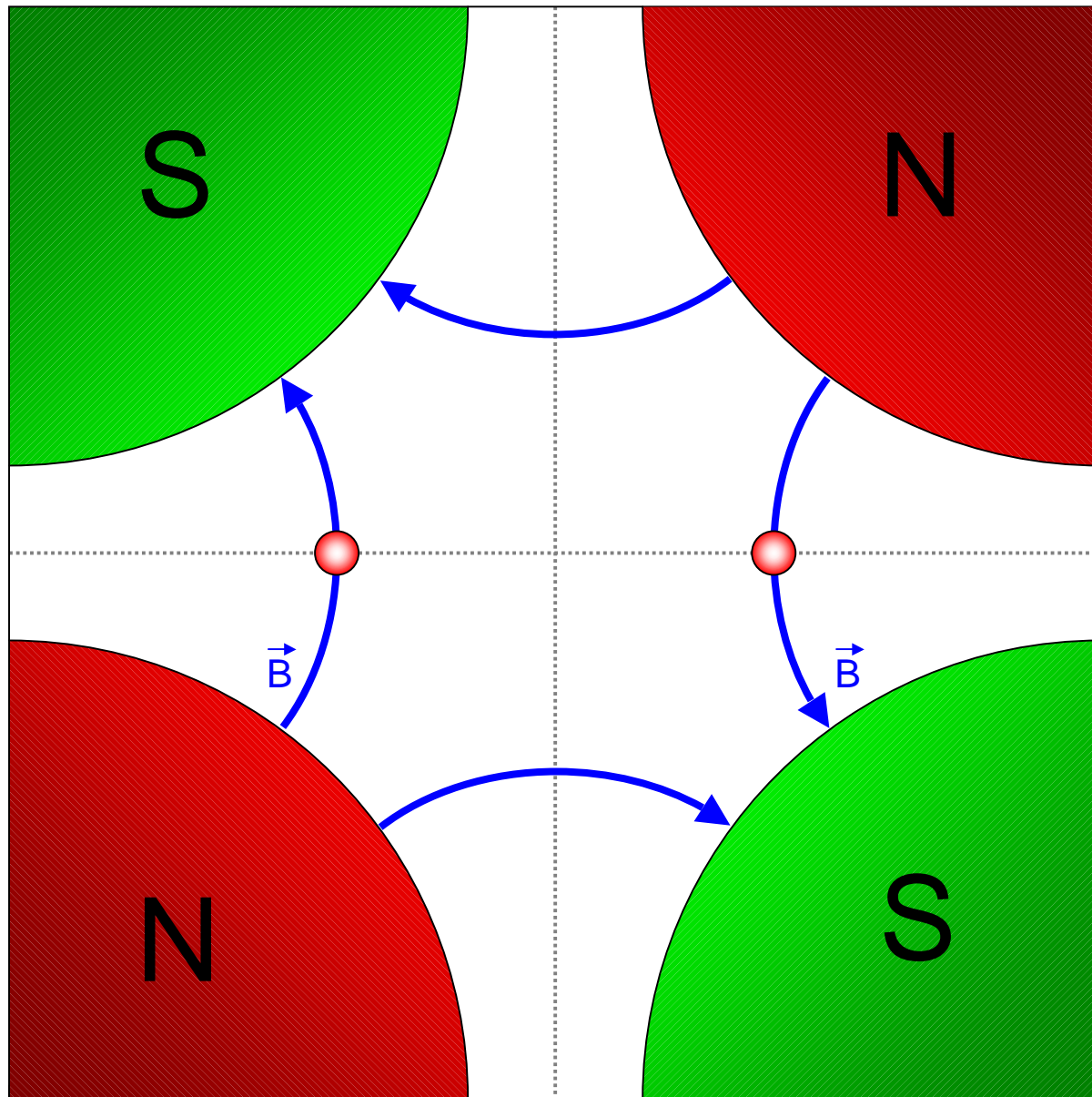
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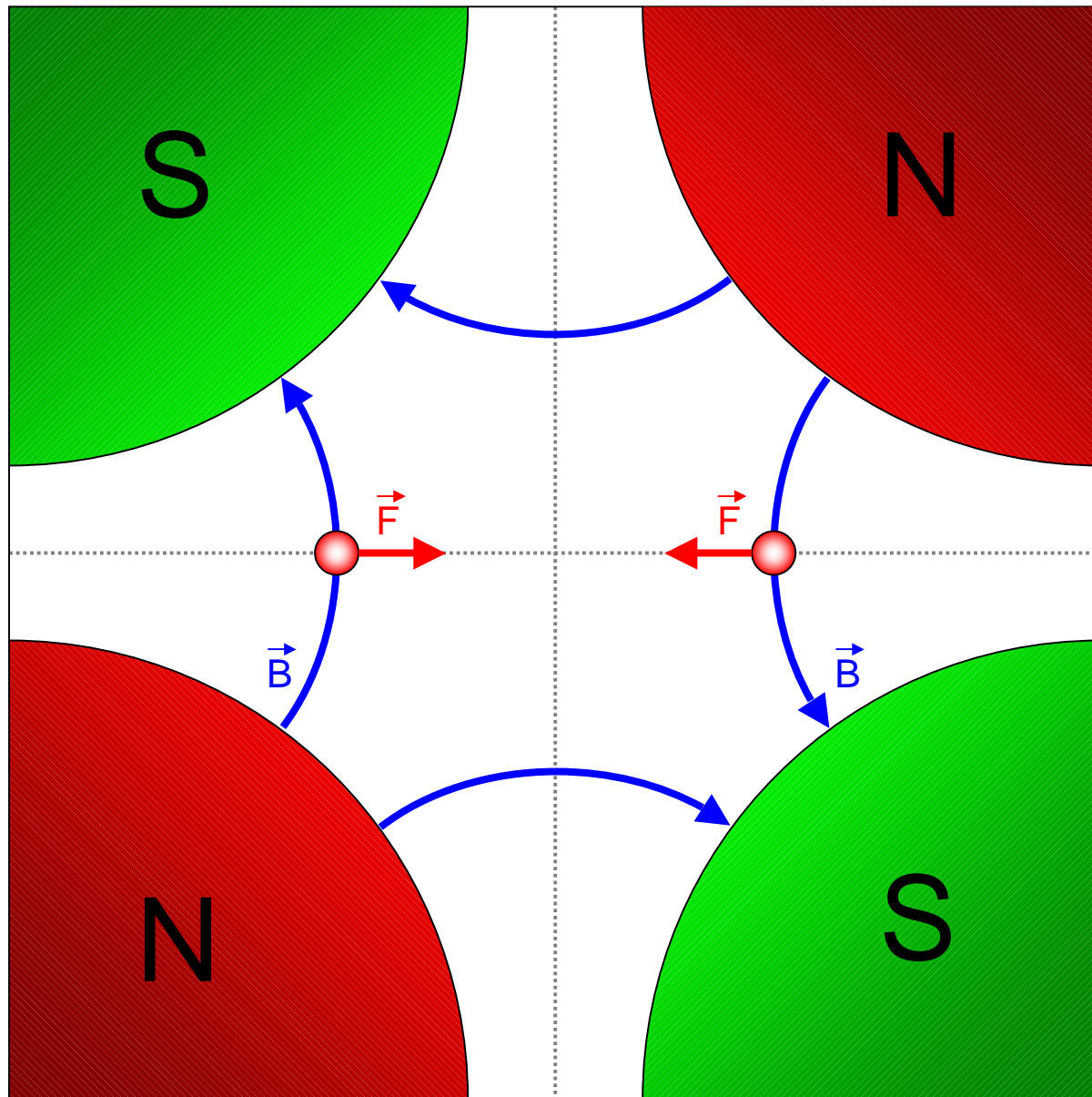
Quadrupol-Magnet



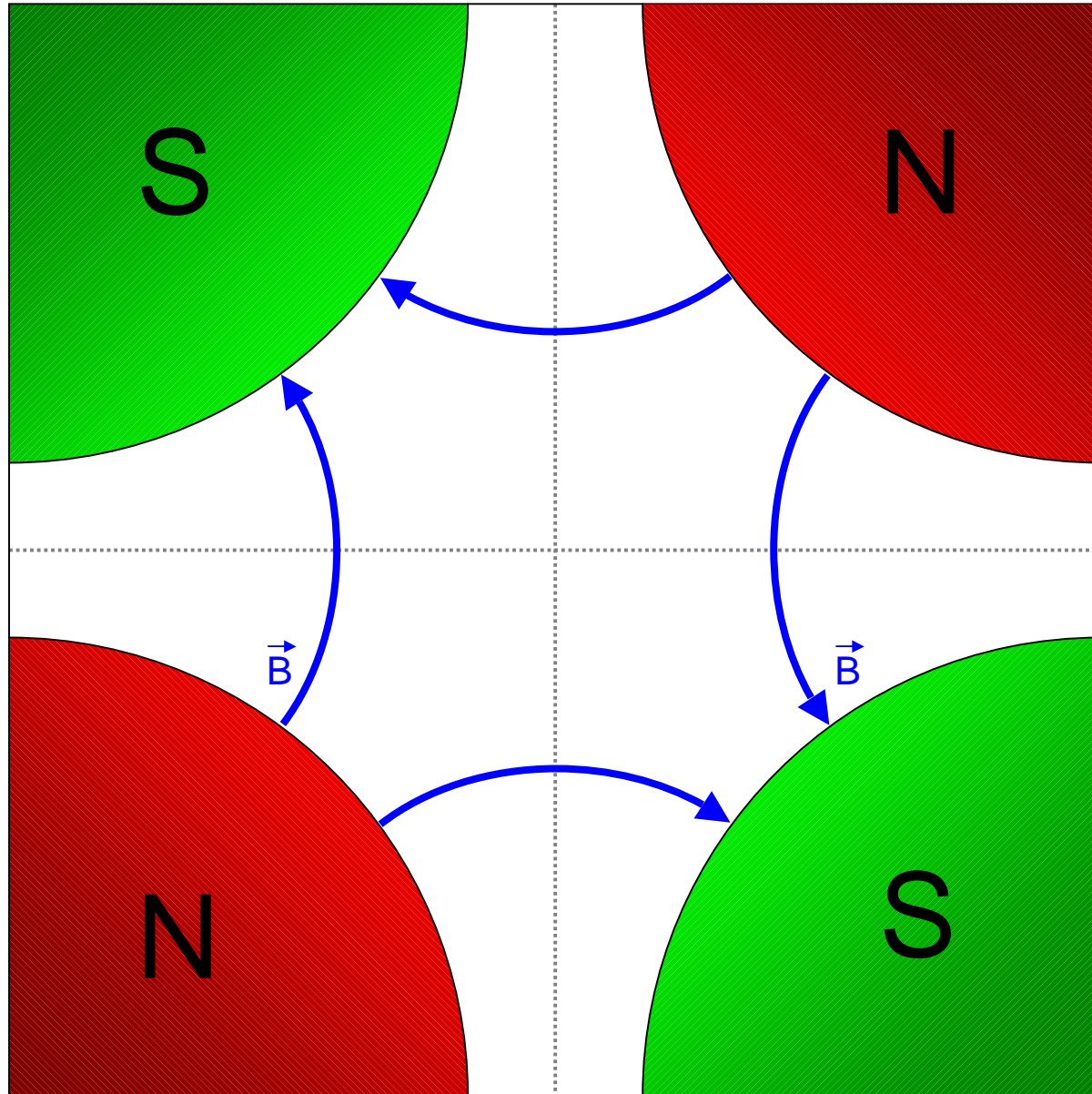
Quadrupol-Magnet



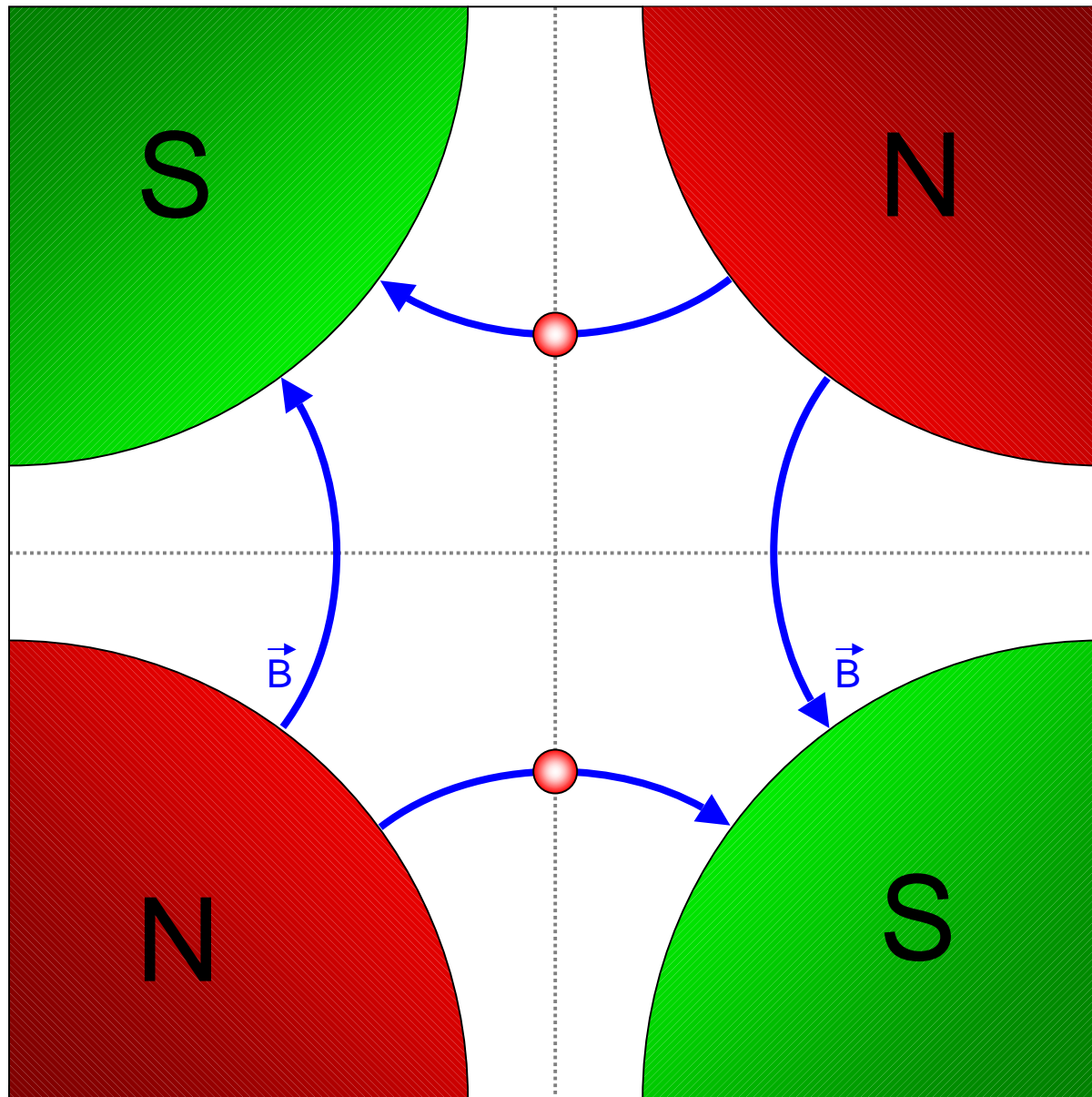
Quadrupol-Magnet



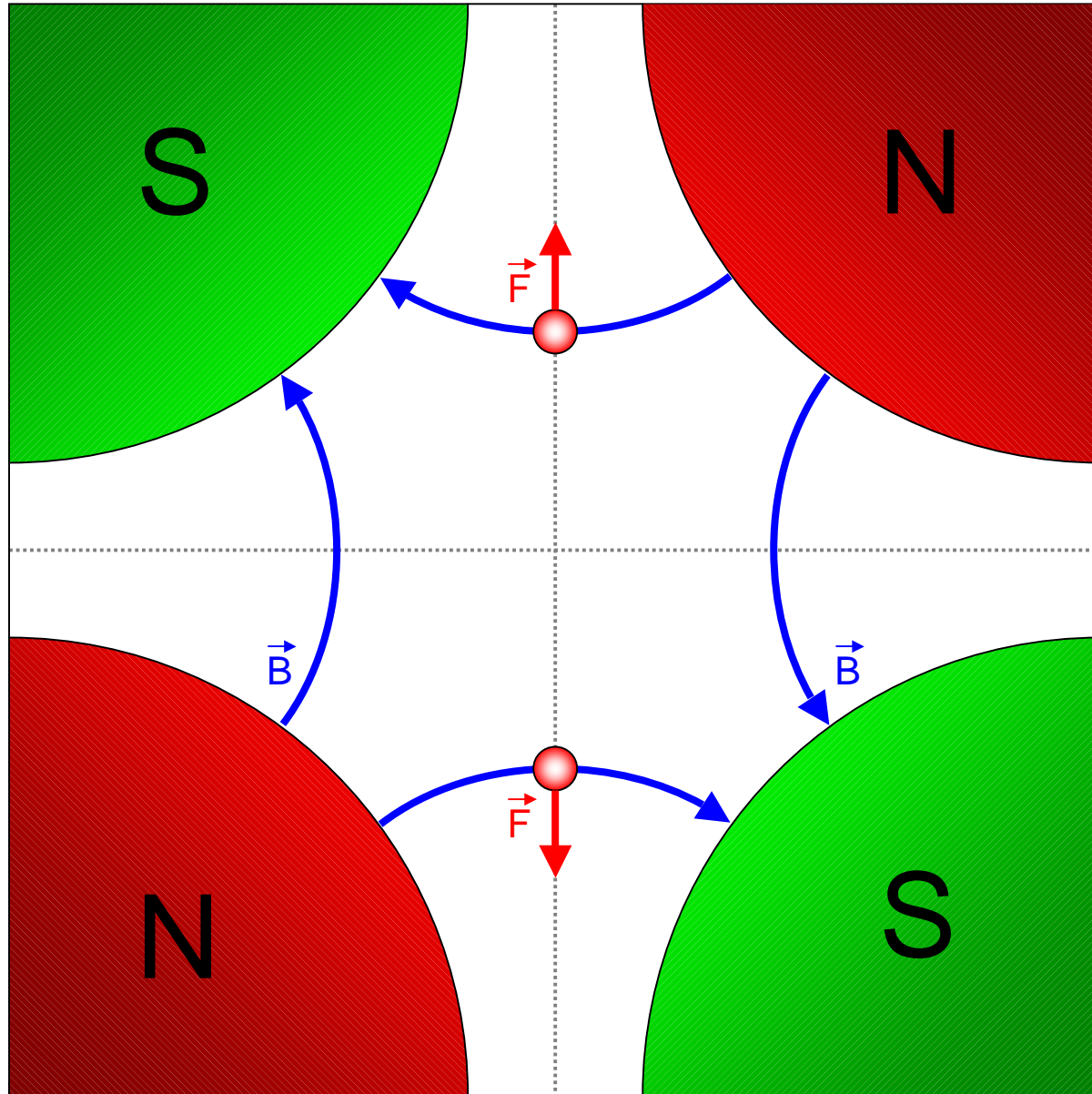
Quadrupol-Magnet



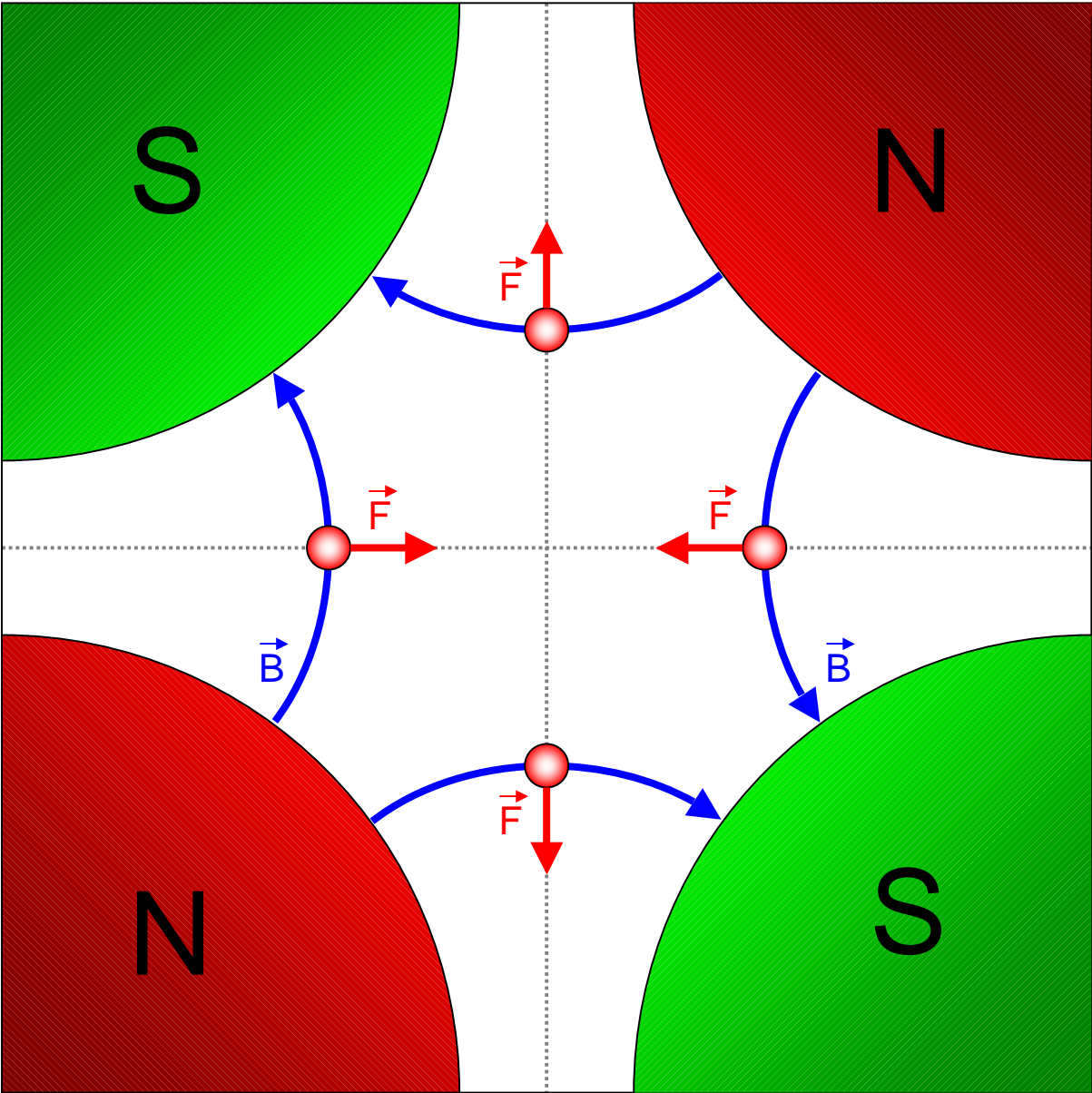
Quadrupol-Magnet



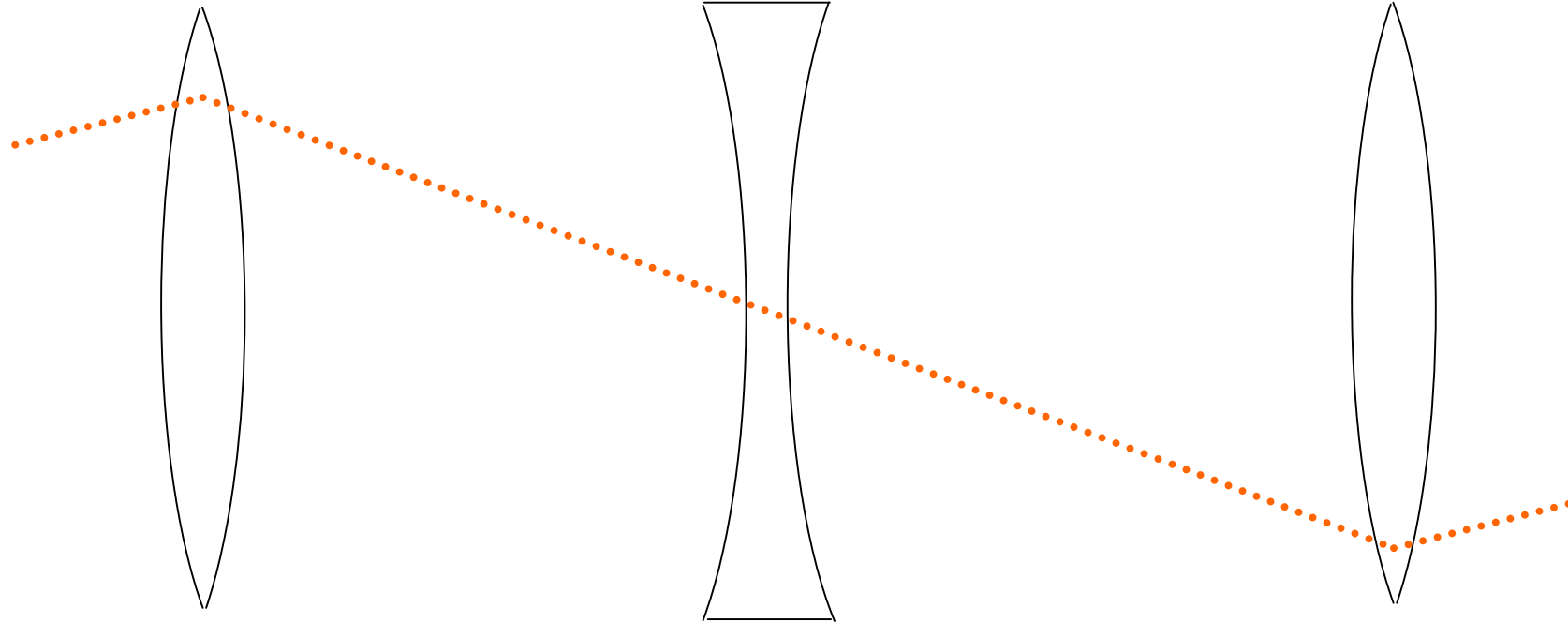
Quadrupol-Magnet



Quadrupol-Magnet



Starke Fokussierung

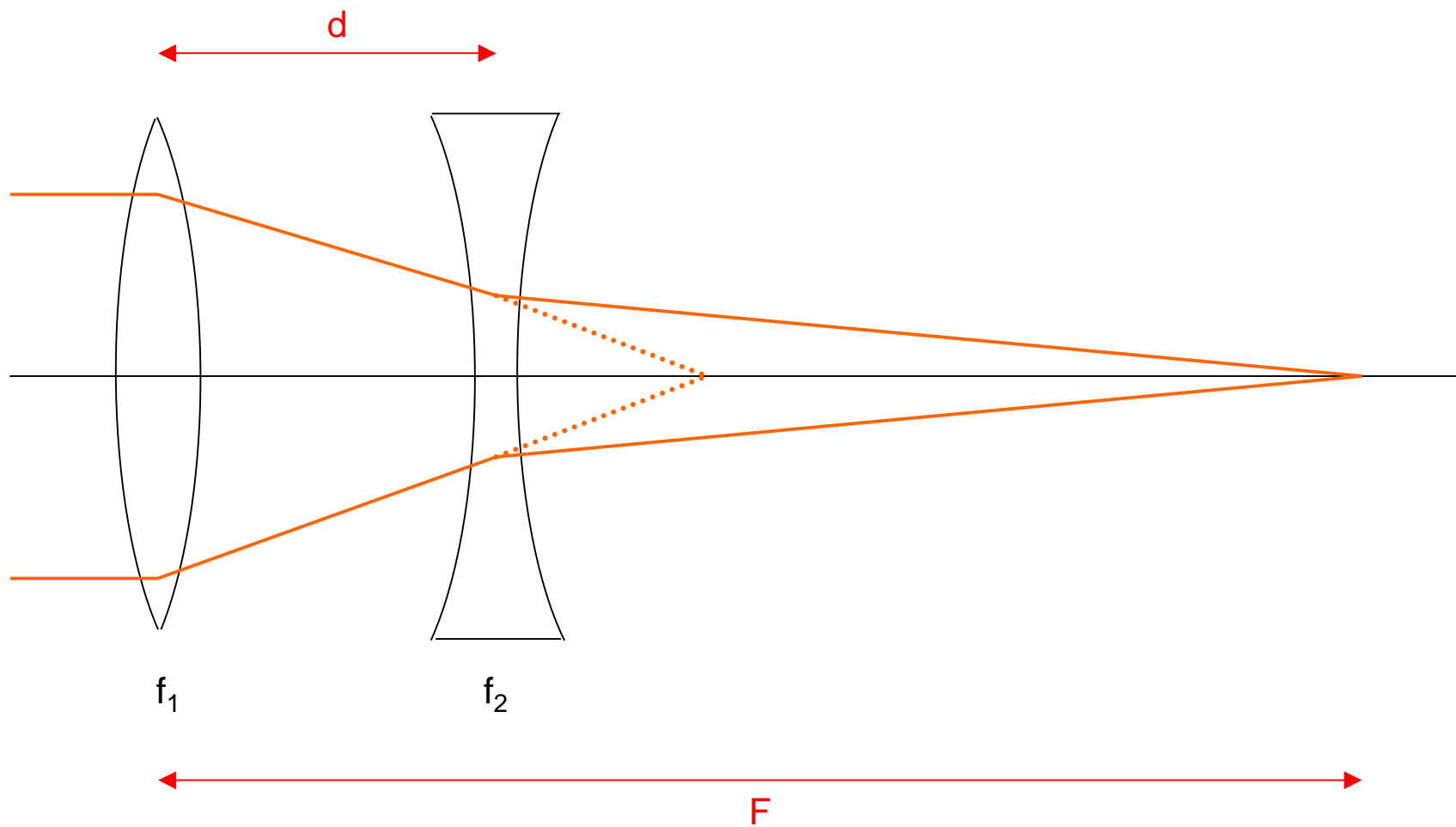


Fokussierender
Quadrupol

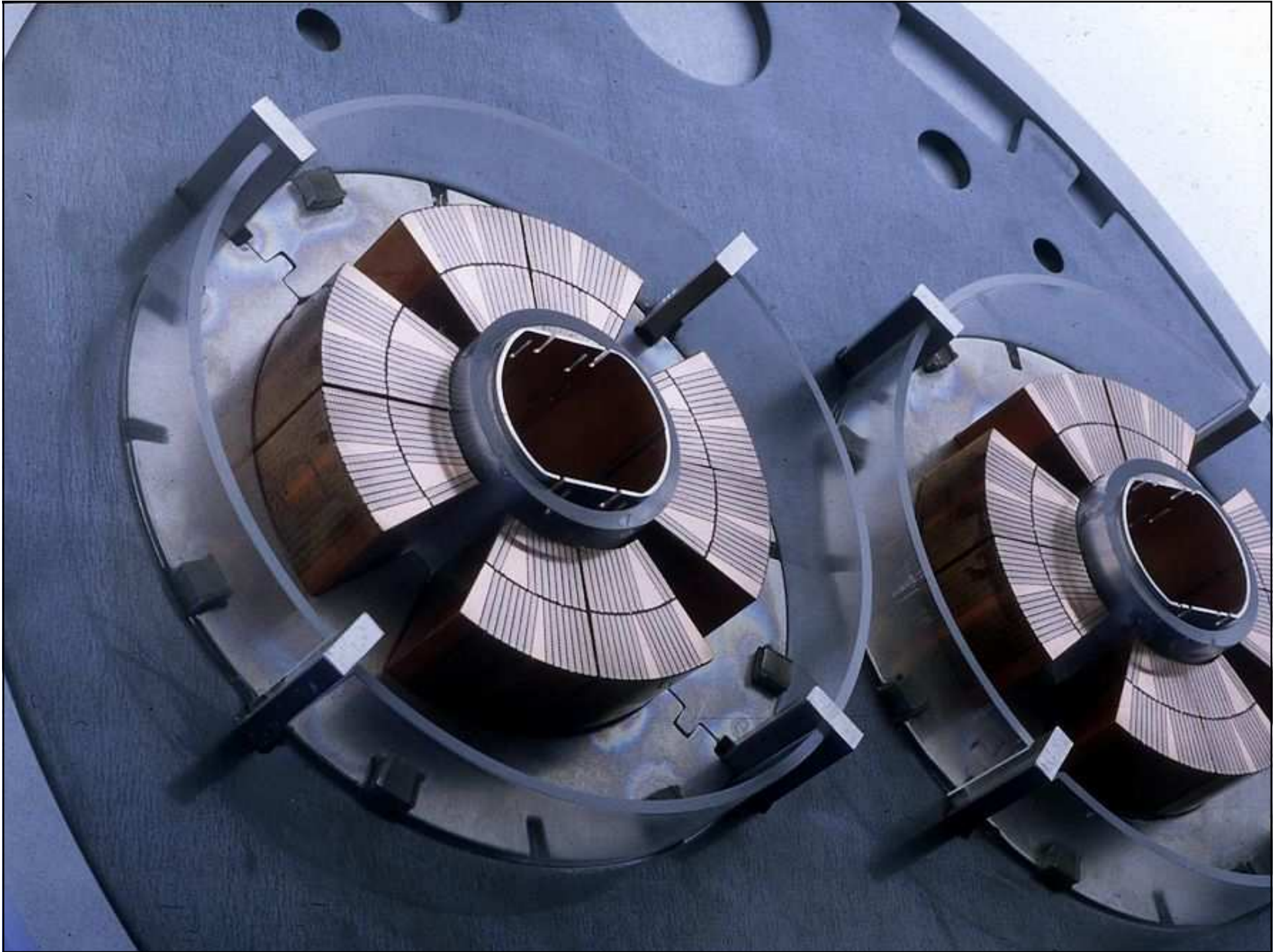
Defokussierender
Quadrupol

Fokussierender
Quadrupol

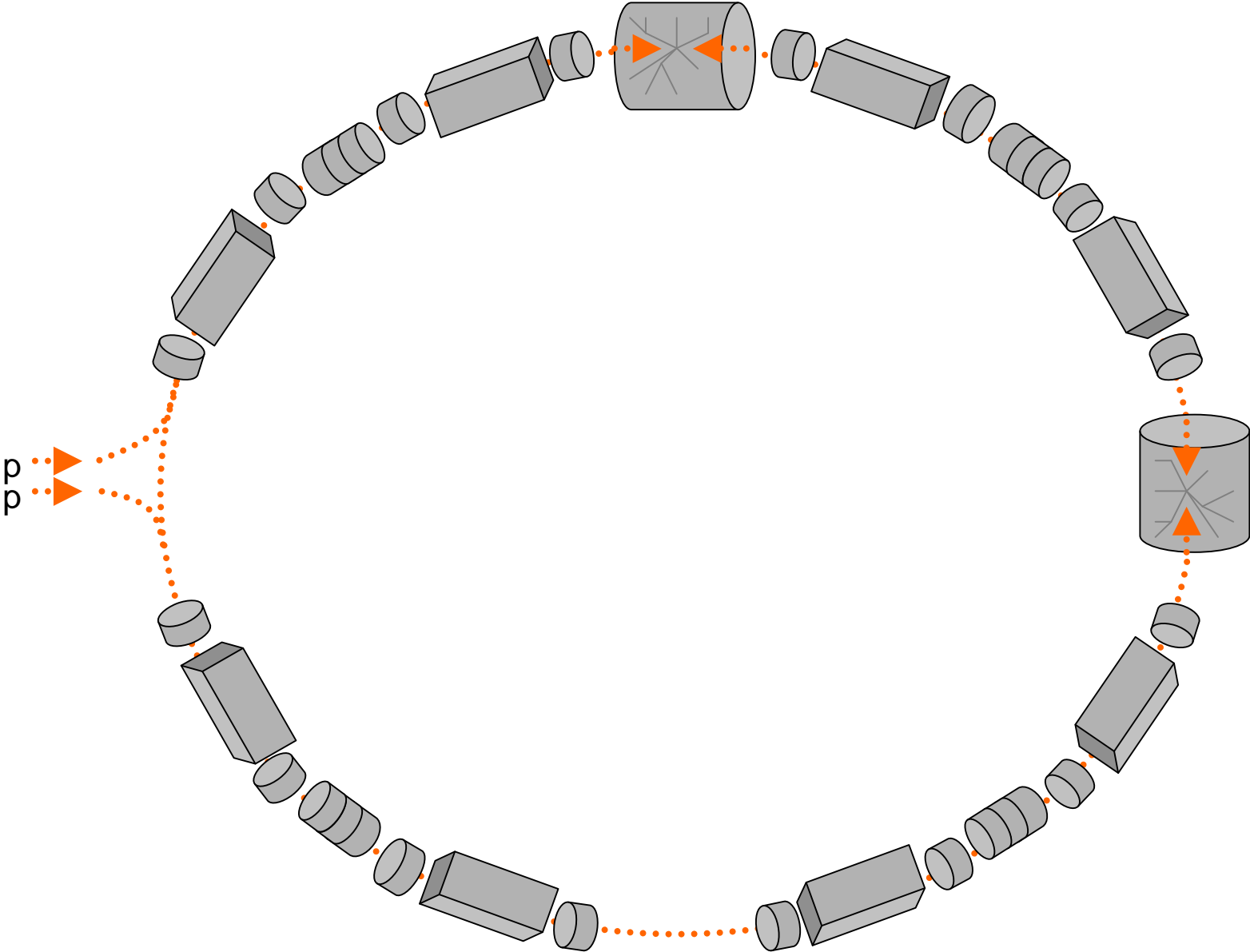
Starke Fokussierung



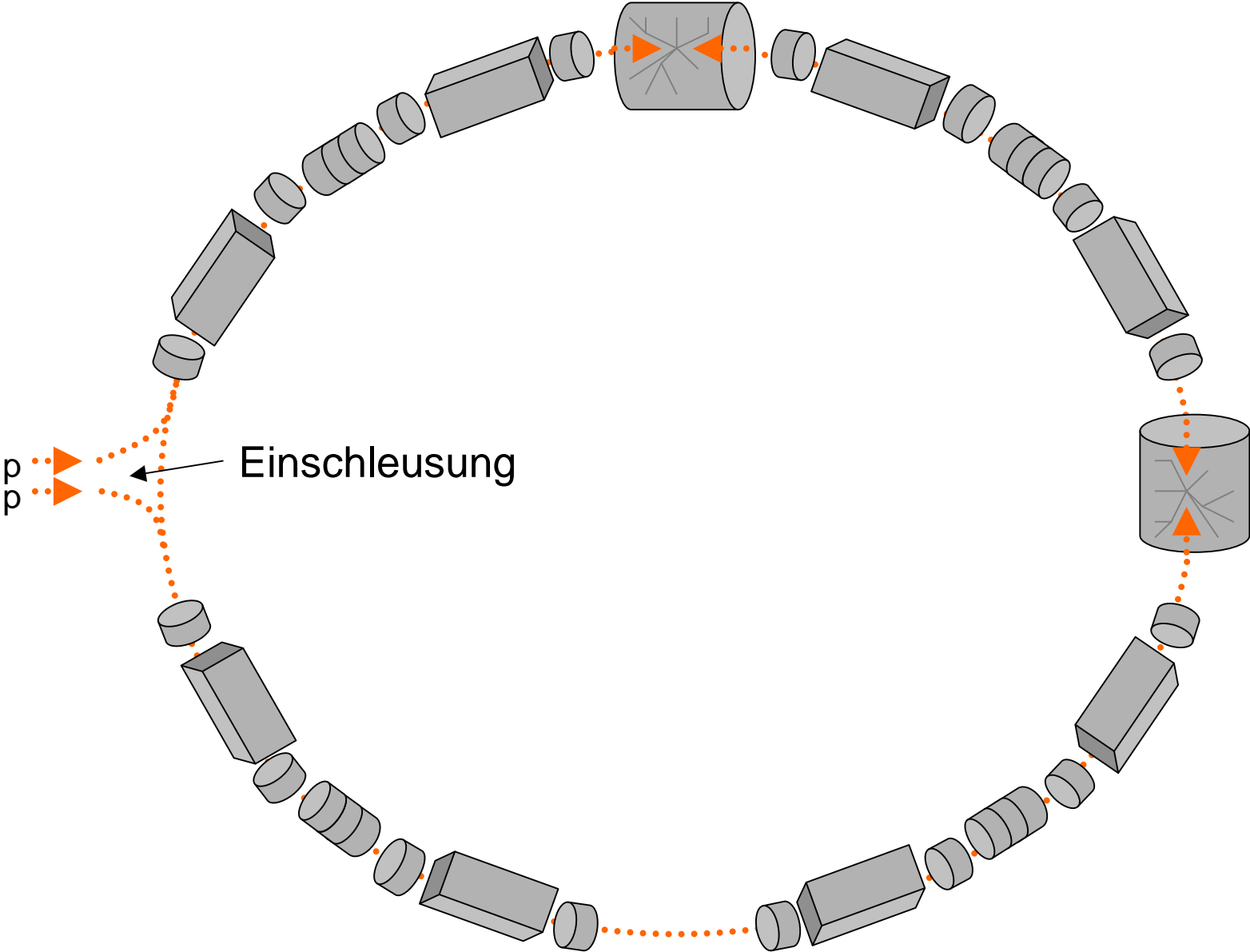




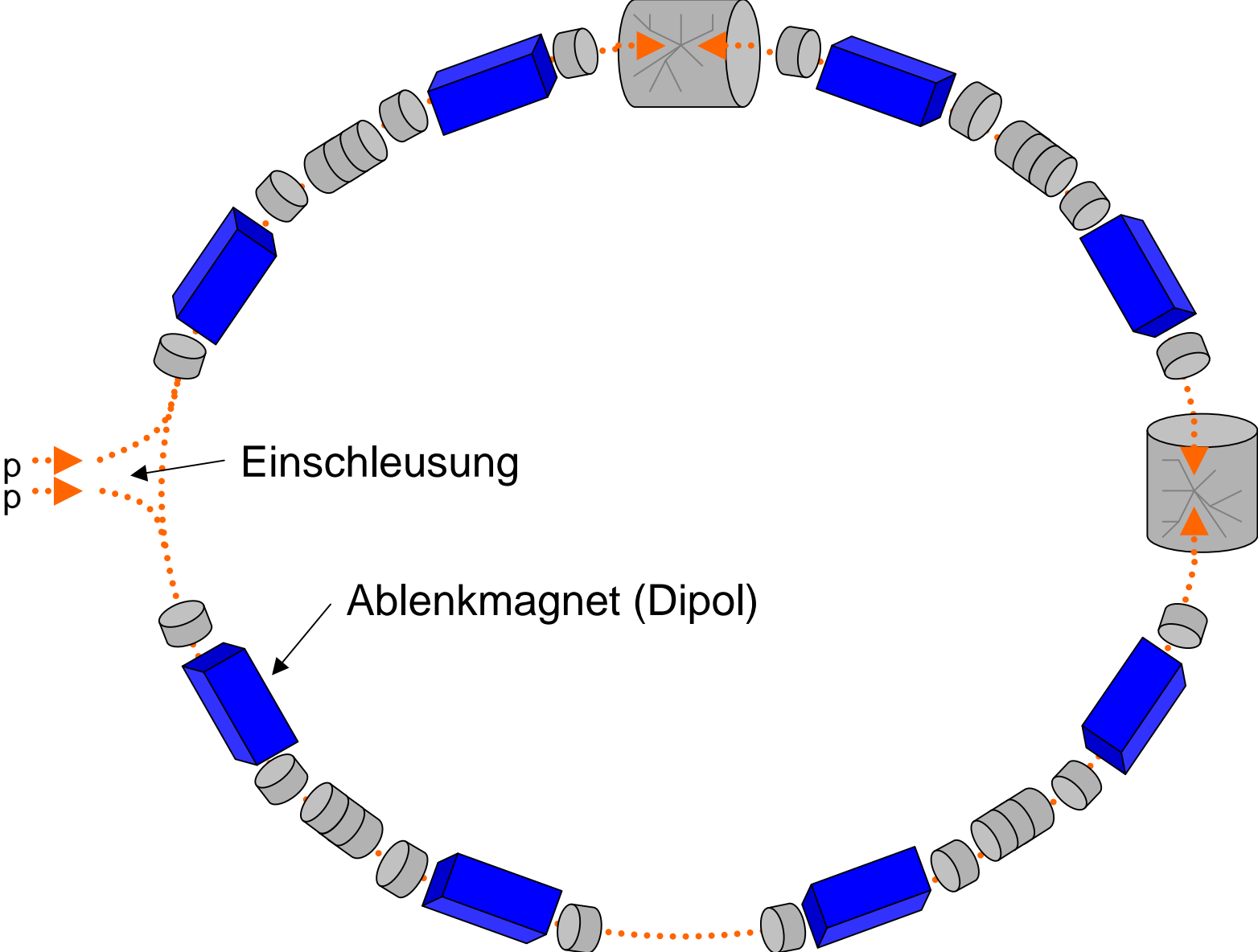
Collider



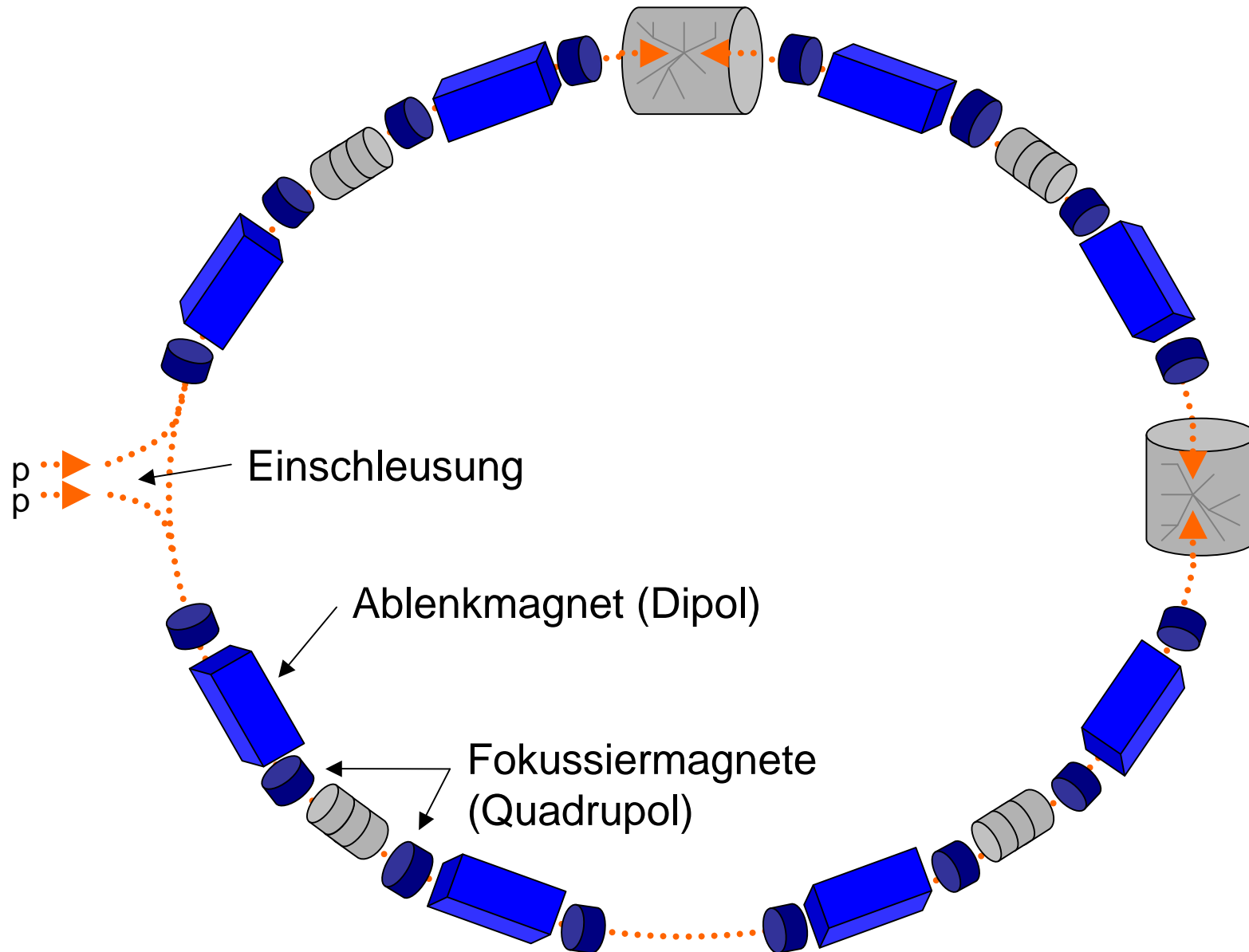
Collider



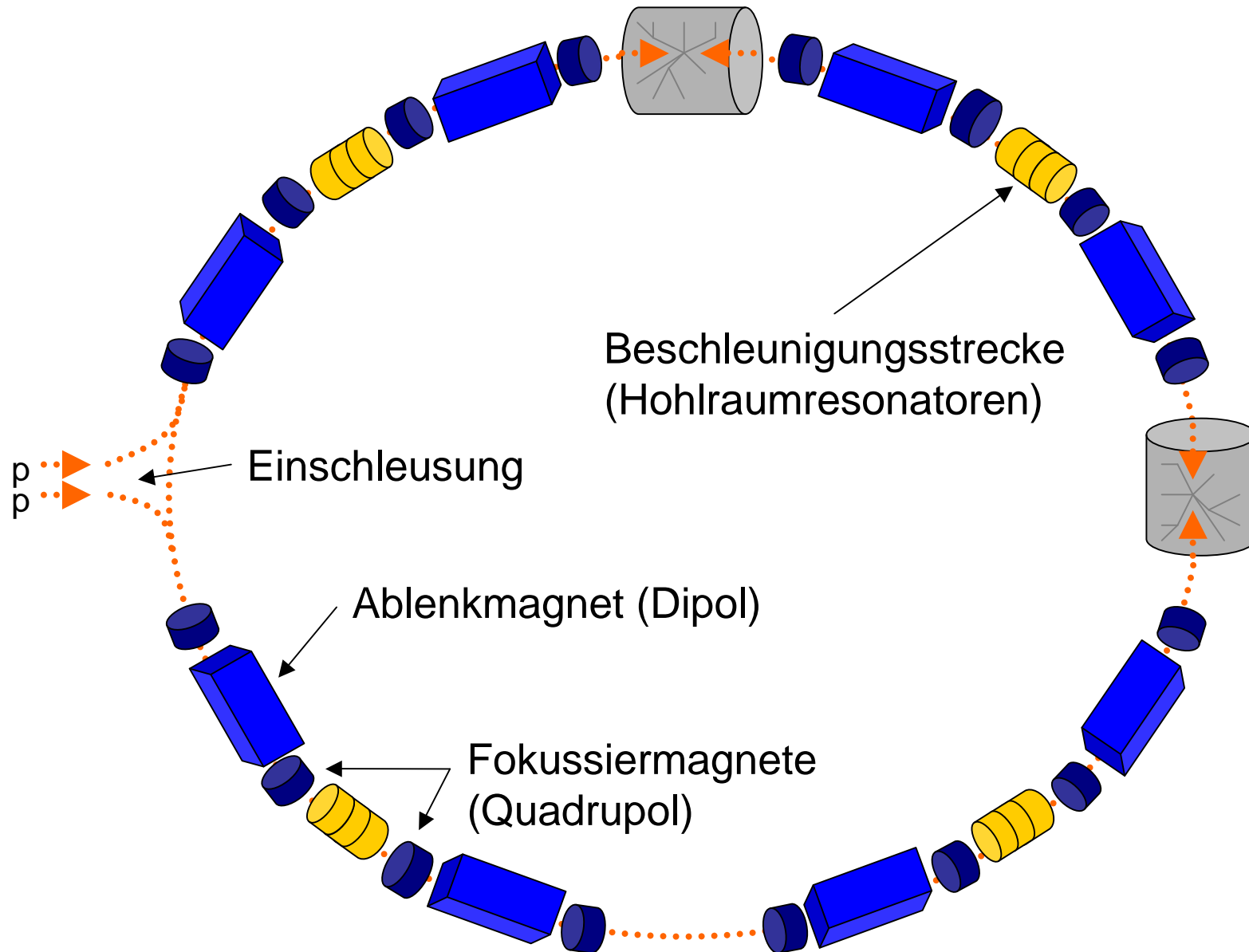
Collider



Collider



Collider



Collider

