

Welcome to Nikhef Theory day at Maastricht



The University of Maastricht

- Young university (turned 50 this year!)

-

The University of Maastricht

- Young university (turned 50 this year!)
- Attracts many international students

The University of Maastricht

- Young university (turned 50 this year!)
- Attracts many international students
- Diverse study paths:
 - Health and Medical science
 - Law
 - Culture & Society
 - Psychology & Neuroscience
 - Business and Economics
 - Science & Engineering

The University of Maastricht

- Young university (turned 50 this year!)
- Attracts many international students
- Diverse study paths:
 - Health and Medical science
 - Law
 - Culture & Society
 - Psychology & Neuroscience
 - Business and Economics
 - Science & Engineering
- Our department is GWFP for Gravitational Waves and Fundamental Physics

Teaching at UM

- Several master programs, many in data science through DACS
-

Teaching at UM

- Several master programs, many in data science through DACS
- No master in physics (yet)

Teaching at UM

- Several master programs, many in data science through DACS
- No master in physics (yet)
- Physics in Bachelor is taught as part of a centralised science program MSP

Teaching at UM

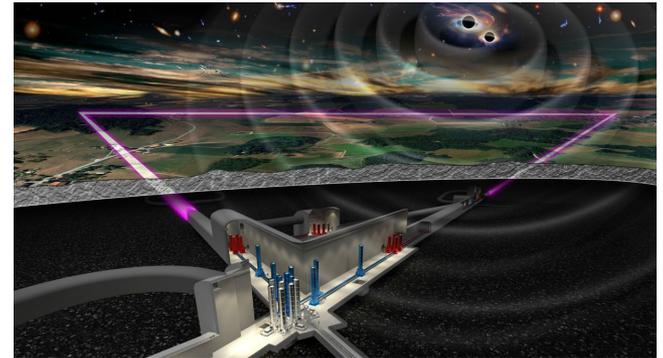
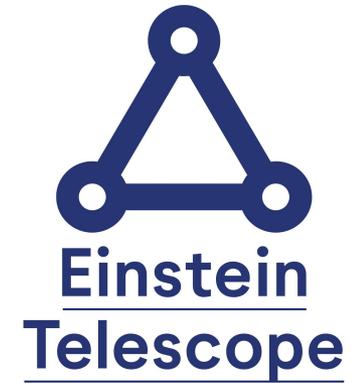
- Several master programs, many in data science through DACS
- No master in physics (yet)
- Physics in Bachelor is taught as part of a centralised science program MSP
- Education is focussed on small tutoring groups with problem based learning and a focus on projects

Teaching at UM

- Several master programs, many in data science through DACS
- No master in physics (yet)
- Physics in Bachelor is taught as part of a centralised science program MSP
- Education is focussed on small tutoring groups with problem based learning and a focus on projects
- As a result the Bachelor students are very pro-active and eager to do projects

Gravitational Waves

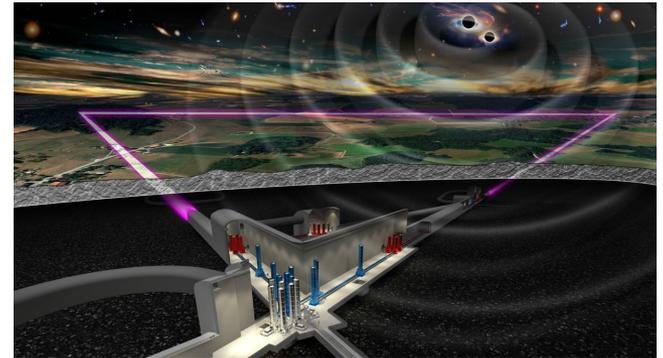
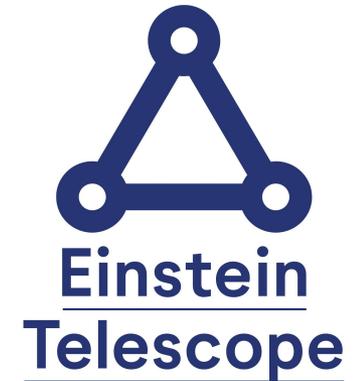
- Einstein Telescope
 - Mirror coatings
 - Suspensions
 - Optics



Einstein Telescope at work courtesy of NIKHEF

Gravitational Waves

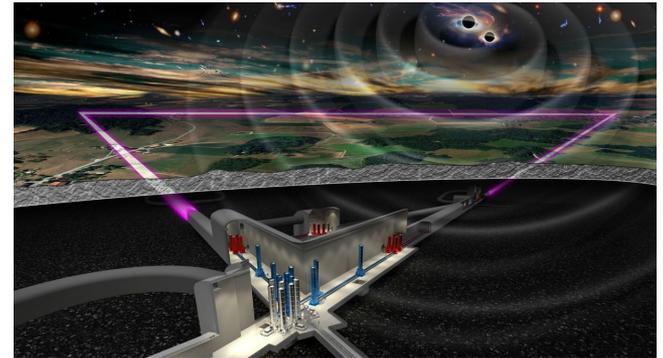
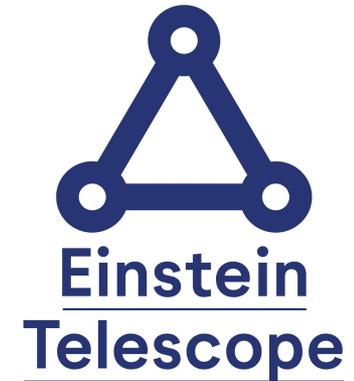
- Einstein Telescope
 - Mirror coatings
 - Suspensions
 - Optics
- VIRGO and LIGO



Einstein Telescope at work courtesy of NIKHEF

Gravitational Waves

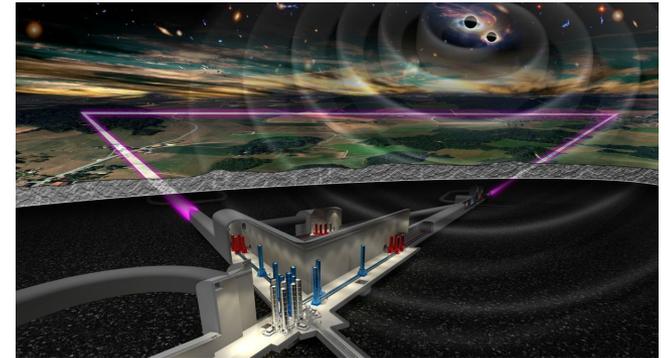
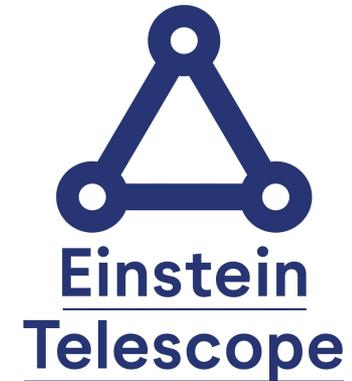
- Einstein Telescope
 - Mirror coatings
 - Suspensions
 - Optics
- VIRGO and LIGO
- ET Pathfinder (tour later today)



Einstein Telescope at work courtesy of NIKHEF

Gravitational Waves

- Einstein Telescope
 - Mirror coatings
 - Suspensions
 - Optics
- VIRGO and LIGO
- ET Pathfinder (tour later today)
- Theory
 - Extreme Mass Ratio Inspirals (EMRI)
 - GR extensions



Einstein Telescope at work courtesy of NIKHEF

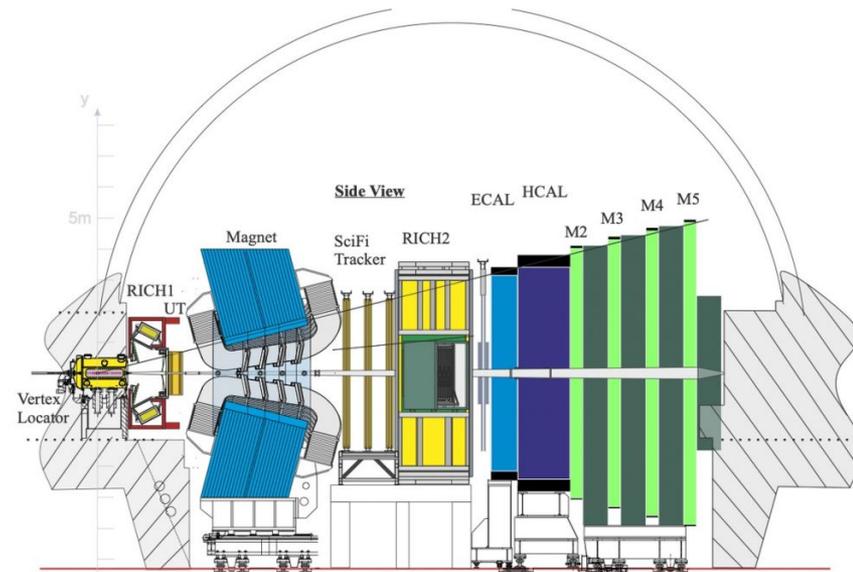
Fundamental Physics

LHCb

- Physics Analysis
 - $B \rightarrow e^+ e^-$
 - $B \rightarrow \tau \nu$



The LHCb detector (courtesy of CERN outreach)



Schematic LHCb detector (courtesy of CERN outreach)

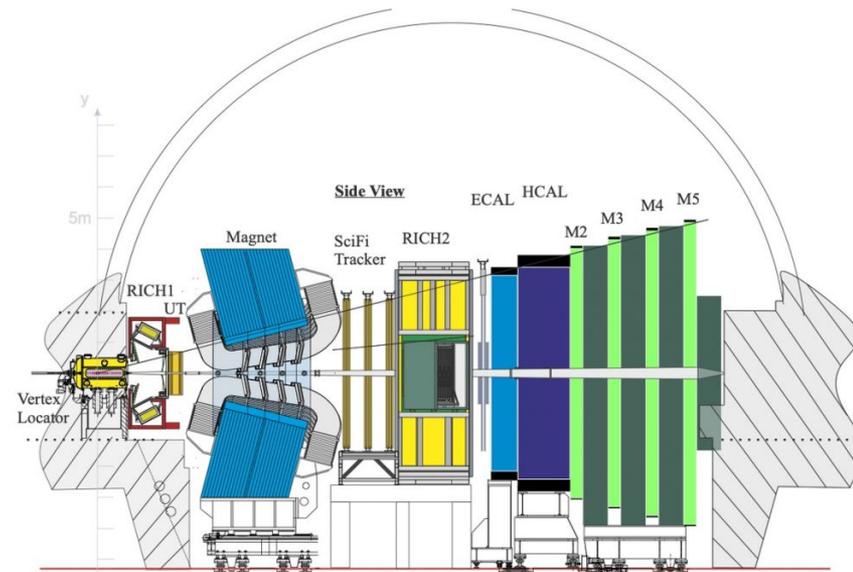
Fundamental Physics

LHCb

- Physics Analysis
 - $B \rightarrow e^+ e^-$
 - $B \rightarrow \tau \nu$
- Quantum Computing
 - Tracking algorithms



The LHCb detector (courtesy of CERN outreach)



Schematic LHCb detector (courtesy of CERN outreach)

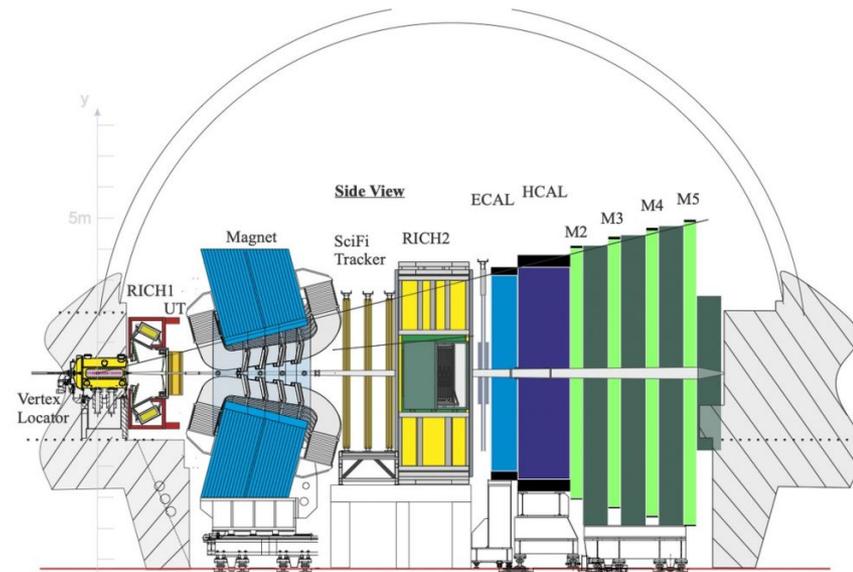
Fundamental Physics

LHCb

- Physics Analysis
 - $B \rightarrow e^+ e^-$
 - $B \rightarrow \tau \nu$
- Quantum Computing
 - Tracking algorithms
- RTA (Real Time Analysis)



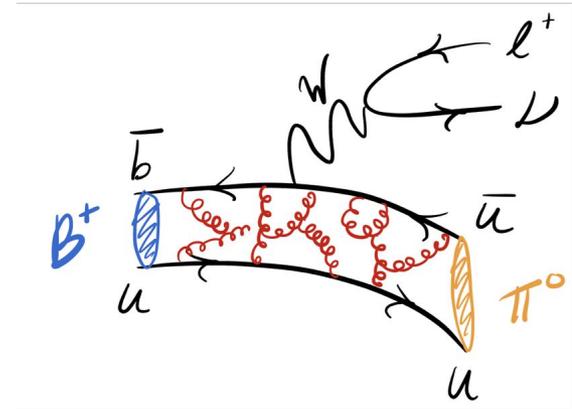
The LHCb detector (courtesy of CERN outreach)



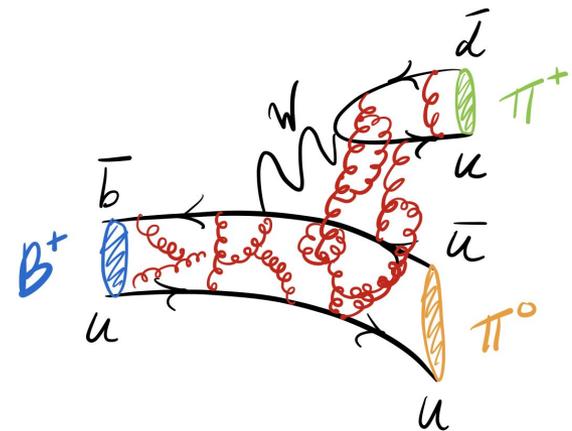
Schematic LHCb detector (courtesy of CERN outreach)

Fundamental Physics

Theory of B decays



Semi-leptonic B decay by Marta Burgos

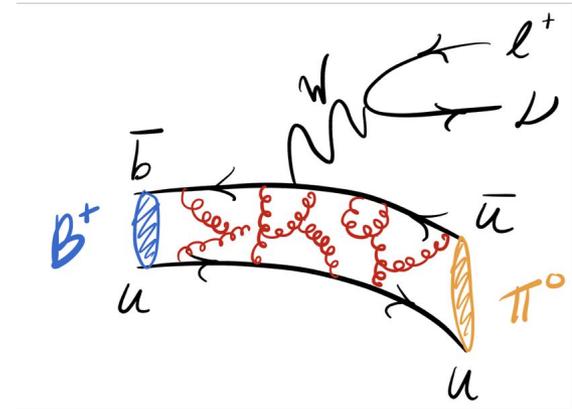


Hadronic B decay by Marta Burgos

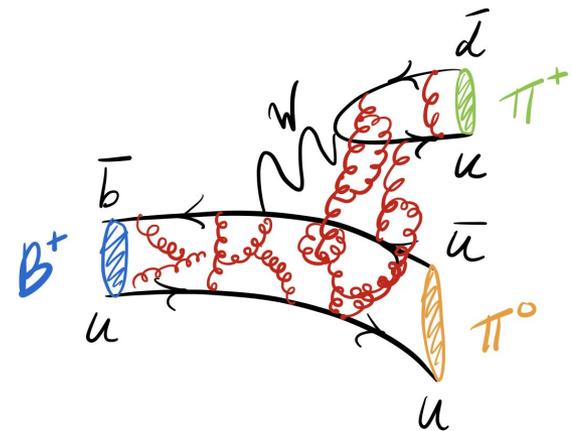
Fundamental Physics

Theory of B decays

- Semi-leptonic
 - Inclusive (theory)
 - Exclusive (analysis)



Semi-leptonic B decay by Marta Burgos

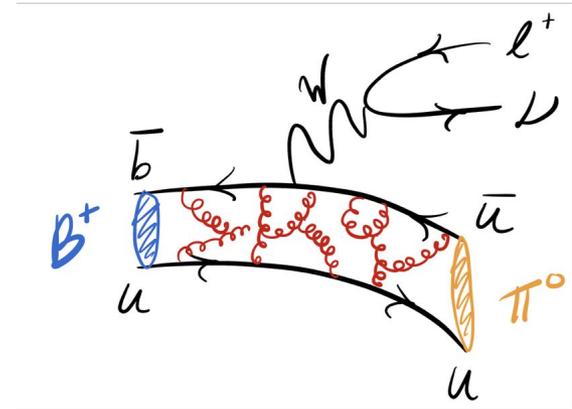


Hadronic B decay by Marta Burgos

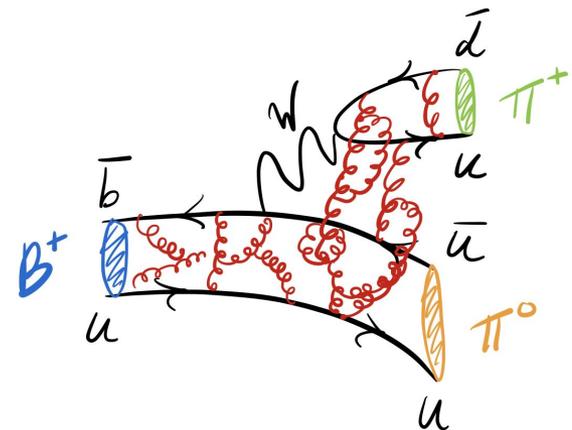
Fundamental Physics

Theory of B decays

- Semi-leptonic
 - Inclusive (theory)
 - Exclusive (analysis)
- Hadronic
 - QCD factorization
 - SU(3)F



Semi-leptonic B decay by Marta Burgos

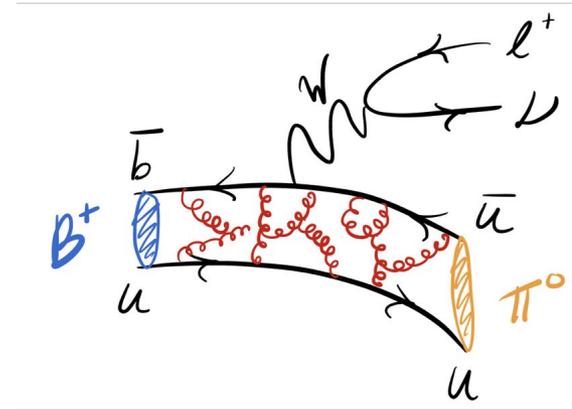


Hadronic B decay by Marta Burgos

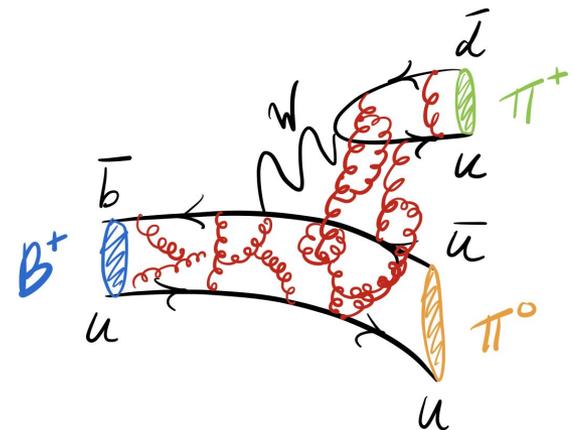
Fundamental Physics

Theory of B decays

- Semi-leptonic
 - Inclusive (theory)
 - Exclusive (analysis)
- Hadronic
 - QCD factorization
 - SU(3)F
- B mesons in BSM models



Semi-leptonic B decay by Marta Burgos



Hadronic B decay by Marta Burgos

Today's Program

10:30 AM → 11:00 AM

Walk-in with vlaai

11:00 AM → 11:15 AM

Welcome

11:15 AM → 12:00 PM

Signature flip in metrics using hypersurface theory and EMRI environments

Speakers: Brecht Slootmaekers (Nikhef), Gideon Koekoek (Maastricht University)

12:00 PM → 1:00 PM

Lunch Break

1:00 PM → 2:00 PM

Student Talk / Staff meeting

Student talk on B mesogenesis

Speaker: Marta Burgos (Maastricht University)

2:00 PM → 2:15 PM

Coffee break

2:15 PM → 3:00 PM

Track HHL: A Quantum Computing Algorithm for particle tracking

Speakers: Davide Nicotra (Maastricht University), Xenofon Chiotopoulos

3:00 PM → 3:45 PM

The search for minimal bases in effective field theory

Speaker: Joan Ruiz Vidal (Maastricht University)

3:45 PM → 4:00 PM

ET Pathfinder tour

4:00 PM → 4:45 PM

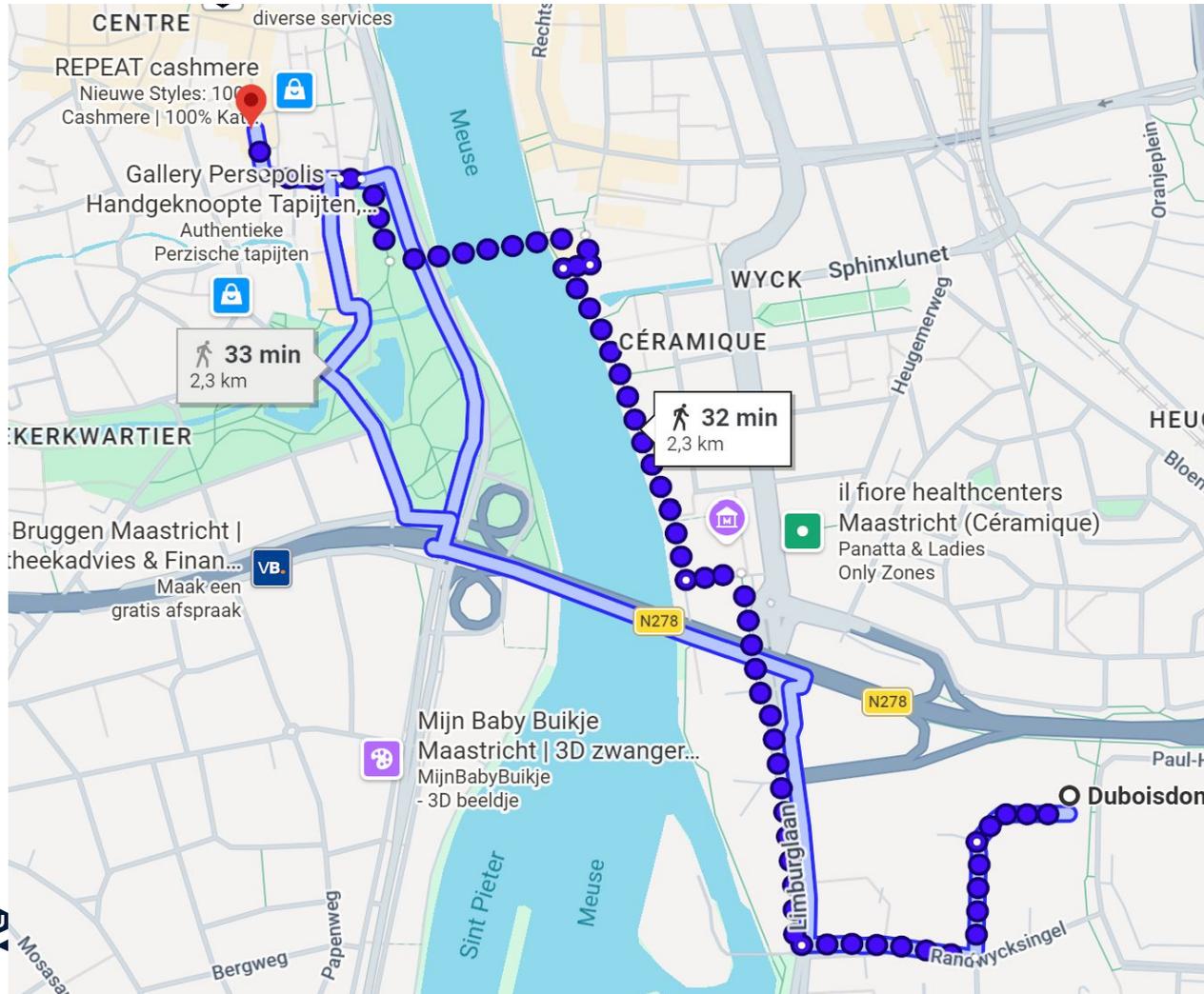
Drinks

5:00 PM → 6:30 PM

Social Activity in Maastricht city center

Social activity

17:30 dinner at De Lantern, Onze Lieve Vrouweplein



if by bike
follow me!

Social activity

17:30 dinner at De Lantern, Onze Lieve Vrouweplein

bus 10

