Program

LION Summer School: Modern physics at all scales

Sunday July 16 - Wednesday July 26, 2017

Sunday, July 16
Arrival at hotel  (dinner is not included at the hotel but breakfast is included)

Monday July 17 Snellius
9:00-10:00:  Prof. Dirk Bouwmeester Welcome to LION (Including brief review of Dutch traffic rules for bicycles)
10:00-11:00:  Dr. Dorothea Samtleben: Introduction to neutrino astronomy
11:00-11:30:  break
11:30-12:30:  Prof. Martin van Exter: Advanced optics
12:30-13:30:  lunch (with speakers of the day)
13:30-14:30:  Prof. Martin van Exter: Advanced optics
14:30-15:00:  break
15:00-15:50:  Dr. Peter Denteneer: Fundamentals of solid state physics
15:50-16:00:  short break
16:00-16:50:  Dr. Peter Denteneer: Fundamentals of solid state physics
17:00-18:00:  Get bicycles!!

18:00  Welcome dinner Restaurant: Verboden toegang

Tuesday July 18 Snellius
9:00 -10:00:  Dr. Dorothea Samtleben: neutrino oscillations
10:00-11:00:  Prof. Martin van Exter: Advanced optics
11:00-11:30:  break
11:30-12:30:  Prof. Michel Orrit: Single molecule optics
12:30-13:30:  lunch (with speakers of the day)
13:30-14:30:  Dr. Peter Denteneer: Fundamentals of solid state physics
14:30-15:00:  break
15:00-16:00:  Dr. Jaap Kautz: Introduction to Low Energy Electron Microscopy (LEEM)
16:00-17:00:  Dr. Sense Jan van der Molen: Experiments with the LEEM

20:00  Pub quiz, Café “Storm”
**Wednesday July 19 Snellius**

9:00 -9:50:  *Prof. Ana Achúcarro: Observing the Big Bang*

9:50-10:00:  short break:

10:00-11:00:  *Prof. Ana Achúcarro: Observing the Big Bang*

11:00-11:30:  break

11:30-12:30:  *Prof. Michel Orrit: Single molecule optics*

12:30-13:30:  lunch (with speakers of the day)

13:30-14:30:  *Dr. Wolfgang Löffler: (Semiconductor) Quantum Photonics*

14:30-17:00:  **Hands on Lab visit 1** (Huygens Laboratory: Orrit, Löffler, Snijders, Bouwmeester)

17:30:  Evening program (Boat Kaag or BBQ on the beach).

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**Thursday July 20 Snellius**

9:00 -10:00:  *Prof. John van Noort: the Physics of DNA organization*

10:00-11:00:  *Thomas O’Brien: Introduction quantum computation*

11-11:30:  break

11:30-12:30  *Dr. Aymen Ben Hamida: Introduction to superconductivity*

12:30-13:30:  lunch (with speakers of the day)

13:30-14:15  *Dr. Aymen Ben Hamida: Introduction to superconductivity*

14:15-15:00:  *Prof. Dirk Bouwmeester: On the collapse of the quantum wave function*

15:00-17:00  **Hands on Lab visit 2**: Kamerlingh Onnes Laboratory

Free evening

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**Friday July 21 Snellius**

9:00 -10:00:  *Dr. Stefan Semrau: Quantitative single cell biology*

10:00-11:00:  *Prof. John van Noort the Physics of DNA organization*

11:00-11:30:  break

11:30-12:30:  *Prof. Dirk Bouwmeester: Quantum Cryptography, Quantum Teleportation*

12:30-13:30:  lunch (with speakers of the day)

13:30-14:30:  *Thomas O’Brien: Quantum Error Correction*

14:30-15:30:  *Prof. Martin van Hecke: Mechanics of metamaterials (introduction lab)*

15:30-16:00:  break

16:00-17:00  **Lab tour**: Huygens Laboratory  *Prof. Martin van Hecke*

Free evening

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**Saturday July 22**

Visit by train to Amsterdam Vondelpark / RijksMuseum, etc”

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**Sunday July 23**

Cycling to Dunes/Beach
Monday July 24 Oort
9:00 -10:00 Dr. Yashar Akrami: Gravity on the largest scales: Do we need to go beyond Einstein?
10:00-11:00 Prof. Koenraad Schalm: Introduction theoretical physics
11-11:30 break
11:30-12:30 Prof. Koenraad Schalm: Introduction theoretical physics
12:30-13:30 lunch (with speakers of the day)
13:30-14:30 Prof. Thomas Schmidt: Introduction cell biology
14:30-15:00 break
15:00-16:00 Dr. Stefan Semrau: Quantitative single cell biology
16:00-17:00 Dr. Daniela Kraft: Self-assembly in colloidal systems

Evening program (food delivery) and student presentations.

Tuesday July 25 Oort
9:00 -10:00 Dr. Paul Baireuther: Machine learning
10:00-11:00 Prof. Thomas Schmidt: Mechanobiology
11-11:15 information about Leiden Master’s program.
11:15-11:30 break
11:30-12:30 Prof. Doris Heinrich: Dynamical processes in living cells
12:30-13:00 lunch (with speakers of the day)
13:30-17: Hands on Lab visit 3: Cell Observatory
(setups: Schmidt/Heinrich/Semrau/van Noort,..)
19:00 Farewell dinner (location?)

Wednesday July 26 Oort
9:00 -10:30 Dr. Alexey Boyarsky (live from CERN):
Why do we believe that the Standard Model is incomplete?
10:30-11:00 break
11:00-12:30 Dr. Daniela Kraft: Self-assembly in colloidal systems
(lecture and lab visit)
12:30-13:30 Lunch
13:30: bicycle return

End of program