

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*

09:00-10:00 **Prof. D. 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. M. van Exter:** *Advanced optics*

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

13:30-14:30 **Prof. M. van Exter/ Dr. Wolfgang Loeffler:** *Advanced optics*

14:30-15:00 break

15:00-15:50 **Dr. Denteneer:** *Fundamentals of solid state physics*

15:50-16:00 short break

16:00-16:50 **Dr. Denteneer:** *Fundamentals of solid state physics*

17:00-18:00 Get bicycles!!

18:00 Welcome dinner Restaurant: **Verboden Toegang**

Tuesday July 18 *Snellius*

09:00-10:00 **Dr. Dorothea Samtleben:** *neutrino oscillations*

10:00-11:00 **Prof. M. van Exter / Dr. Wolfgang Loeffler:** *Advanced optics*

11:00-11:30 break

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

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

13:30-14:30 **Dr. 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. S.J. van der Molen:** *Experiments with the LEEM*

20:00 Pub quiz, Café "Storm"

Wednesday July 19 *Snellius*

09:00-09:50 **Prof. Ana Achúcarro:** *Observing the Big Bang*

09:50-10:00 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@Huygens cafeteria (with speakers of the day)

13:30-14:30 **Dr. Wolfgang Loeffler:** *Semiconductor Quantum Information Science*

14:30-17:00 **Hands on Lab visit 1** (Huygens: Orrit, Exter, Loeffler, de Dood, Bouwmeester):

17:30 Evening program ???

Thursday July 20 *Snellius*

09:00-10:00 **Dr. John van Noort:** *the Physics of DNA organization*
10:00-11:00 **Thomas O'Brien:** *Introduction quantum computation*
11:00-11:30 break
11:30-12:30 **Dr. Haymen Ben Hamida:** *Introduction to superconductivity*
12:30-13:30 lunch@Huygens cafeteria (with speakers of the day)
13:30-14:15 **Dr. Haymen 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

Friday July 21 *Snellius*

09:00-10:00 **Dr. Stefan Semrau:** *Quantitative single cell biology*
10:00-11:00 **Dr. 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@Huygens cafeteria (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

Saturday July 22

Visit by train to Amsterdam Vondelpark / RijksMuseum, etc"

Sunday July 23

Cycling to Dunes/Beach
(rain alternative: Museum in Leiden)

Monday July 24 *Oort*

09:00-10:00 **Dr. Yashar Akarami:** *Gravity on the largest scales: Do we need to go beyond Einstein?*
10:00-11:00 **Prof. Koenraad Schalm:** *Introduction theoretical physics*
11:00-11:30 break
11:30-12:30 **Prof. Koenraad Schalm:** *Introduction theoretical physics*
12:30-13:30 lunch@Huygens cafeteria (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

09:00-10:00 **Dr. Paul Baireuther:** *Machine learning*
10:00-11:00 **Prof. Thomas Schmidt:** *Mechanobiology*
11:00-11:15 information about Leiden Master's program.
11:15-11:30 break
11:30-12:30 **Prof. Doris Heinrich:** *Dynamical processes in living cells*
12:30-13:30 lunch@Huygens cafeteria (with speakers of the day)
13:30-17:00 **Hands on Lab visit 3:** Cell Observatory
(setups:Schmidt/Heinrich/Semrau/van Noort,...)
19:00 Good bye dinner (location?)

Wednesday July 26 Oort

09:00-10:30 **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@Huygens cafeteria
13:30 **bicycle return**

End of program