

CONES 2018

Conference on Non-Equilibrium
Science

Programme Booklet

KCL 25th – 27th June



Welcome to the 2nd CONES Conference on Non-Equilibrium Systems

All talks will take place on the ground floor of the King's Building

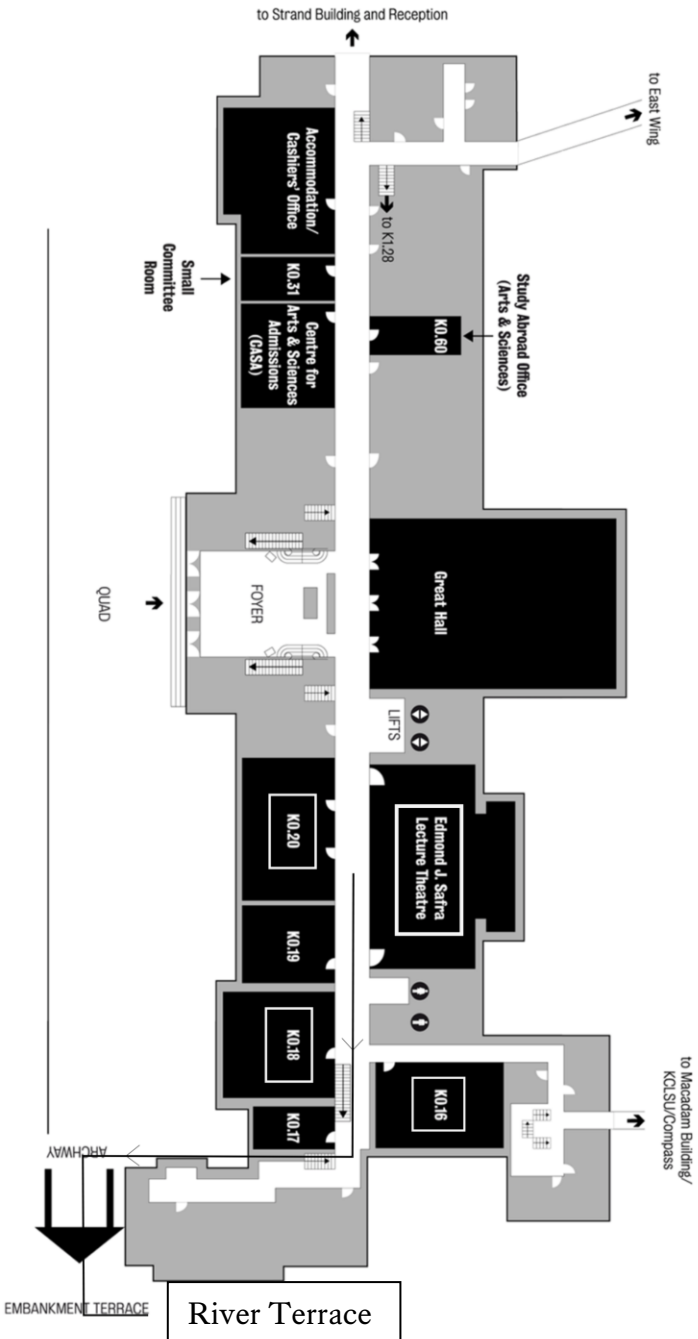
Coffee shall be served in K0.20

Lunch shall be served on the River Terrace (South side of the King's Building) weather permitting. Otherwise lunch will be in K0.20.

Posters shall be presented in K0.18 throughout the conference.

A Map of these locations is on the opposite page

King's Building: Ground Floor

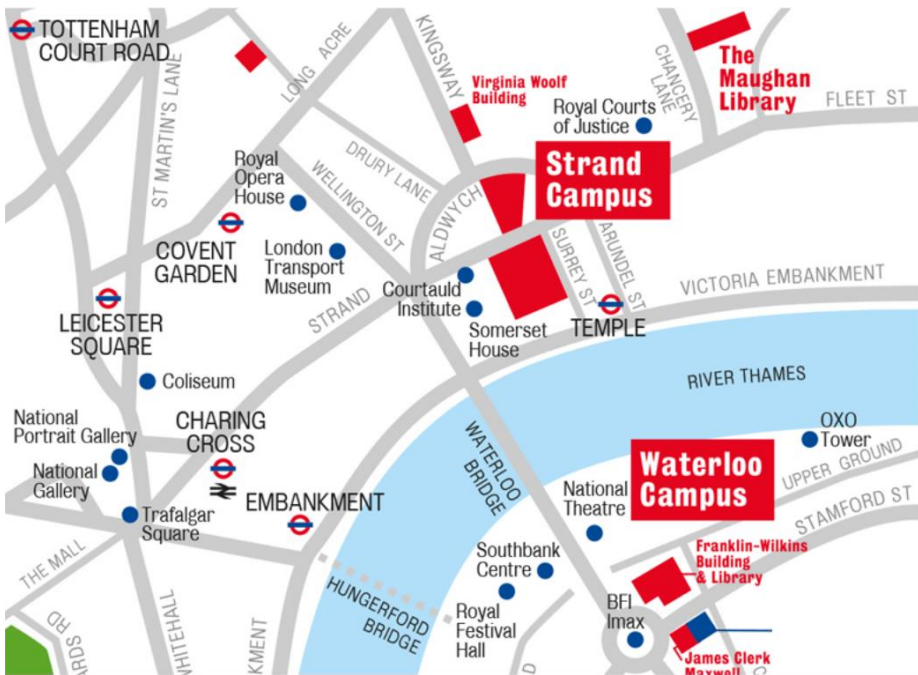


Local Information

King's College London is located in central London with many food options, restaurants and pubs within a short walk of the college.

Popular nearby locations include

- Wetherspoons
- Temple Brew house
- Mabels – 2 4 1 cocktails before 7



Map of the strand campus in relation to Central London

Monday 25 June 2018

09:00-09:25 Coffee and Registration

Edmond J Safra Lecture Theatre

09:25-09:30 Welcome from Joe Bhaseen

09:30-10:15 Markus Heyl (Dresden)
Dynamical quantum phase transitions

10:15-11:00 Pierfrancesco Urbani (IPHT)
From jamming of particles to machine learning and back

11:00-11:30 *Coffee Break*

11:30-12:15 Simone Pigolotti (Rome)
Generic properties of stochastic entropy production

12:15-12:45 Poster Spotlights

12:45-14:30 *Lunch and Posters*

- 14:30–15:15** Eric Vanden-Eijnden (Courant
Institute, NYU)
Parameters as interacting particles:
asymptotic scaling, convexity, and error
of neural networks
- 15:15–16:00** Andrea Cavagna (CNR-ISC,
Institute for Complex Systems, Rome)
Dynamical Scaling in Natural Swarms
- 16:00–16:30** *Coffee Break*
- 16:30–17:15** Anatoli Polkovnikov (Boston)
Cluster Truncated Wigner
Approximation for Dynamics of
Interacting Quantum Systems
- 17:15–18:00** Poster Session
- 18:00–19:00** Welcome Reception in Terrace
Café (Macadam Building, Strand
Campus)

Tuesday 26 June 2018

09:00-09:25 Coffee and Registration

Edmond J Safra Lecture Theatre

09:30-10:15 Ehud Altman (Berkeley)
Ergodicity, entanglement and many-body localization in quantum systems

10:15-11:00 Dmitry Abanin (Geneva)
New non-equilibrium quantum many-body states enabled by ergodicity breakdown

11:00-11:15 Poster Spotlights

11:15-11:45 *Coffee Break*

| | Physical <i>Edmond J Safra</i> <i>Lecture Theatre</i> | Statistical Mechanics <i>K0.16</i> |
|--------------------|---|--|
| 11:45–12:30 | Arijeet Pal (Oxford) Quantum circuits, many-body localisation, and discrete time crystals | Raffaella Burioni (Parma) Neuronal Avalanches in cortex dynamics and the synchronization transition |
| 12:30–13:00 | Federico Carollo (Nottingham) Current fluctuations in boundary-driven quantum spin- chains | Carl Dettmann (Bristol) Network connectivity in complex geometries |

13:00–14:30

Lunch and Posters

14:30–15:15

Adam Nahum
(Oxford)

Emergent
statistical
mechanics of
entanglement'.

Edgar Roldan
(ICTP, Trieste)

Arcsine laws and
extreme values in
stochastic
thermodynamics

15:15–15:45

**Filippo Maria
Gambetta**
(Nottingham)

Discrete time
crystals in
metastable open
quantum systems

**Carlos Perez-
Espigares**
(Nottingham)

Critical phenomena
and their
microscopic origin
in the dynamical
fluctuations of
driven diffusive
systems

15:45–16:15

Coffee Break

16:15–16:45

Marzena
Symanska
(UCL)

Markus Meuwly
(Basel) Dynamics
Far from
Equilibrium in
Atmospheric
Molecular
Processes

16:45–18:00 Poster Session

Edmond J Safra Lecture Theatre

18:30–19:30 Public lecture – Allan Tucker.
Three AI Algorithms Inspired by Data
from the Life Sciences

Wednesday 27 June 2018

09:00-09:25 Coffee and Registration

Edmond J Safra Lecture Theatre

09:30-10:15 Hernan Makse (CUNY) TBC

10:15-11:00 Daniel Sussman (Syracuse)
Anomalous interfaces in simple
models of dense biological tissue

11:00-11:15 Poster Spotlight

11:15-11:45 *Coffee Break*

| | Physical <i>Edmond J Safrá Lecture Theatre</i> | Biological <i>K0.16</i> |
|--------------------|---|--|
| 11:45–12:15 | Patrick Pietzonka (Cambridge) Thermodynamic bounds on current fluctuations | Ivet Bahar (Pittsburgh) Multiscale Modeling and Simulations of Neurotransmitter Transport |
| 12:15–12:45 | Katarzyna Macieszczak (Cambridge) Thermodynamic uncertainty relations | Richard Blythe (Edinburgh) Universal Scaling of a growing interface constrained by a membrane |

12:45–14:15 *Lunch and Posters*

14:15–14:45

Robert Jack
(Cambridge)

Large deviation of
the active work in
active fluid

**Carmen Molina-
Paris** (Leeds)

Stochastic
descriptors to study
the fate of naive T
cell clonotypes in
the periphery

14:45–15:15

Patrick Ilg
(Reading)

Nanorheology and
magnetoviscosity of
magnetic
nanoparticles in
viscoelastic
environments

Chiu Fan Lee
(Imperial)

The Physics of
Non-Equilibrium
Phase separation:
Implications for
stress granule
formation in the
cell cytoplasm

15:15–15:45

Coffee Break

15:45–16:30

Luca Dall'Asta (Turin)

Optimality in self-organized molecular
sorting

16:30-17:15

Ton Coolen (KCL)

Inferring parameters of irreversible processes: replica analysis of overfitting in time-to-event regression

17:15-17:20

Concluding remarks