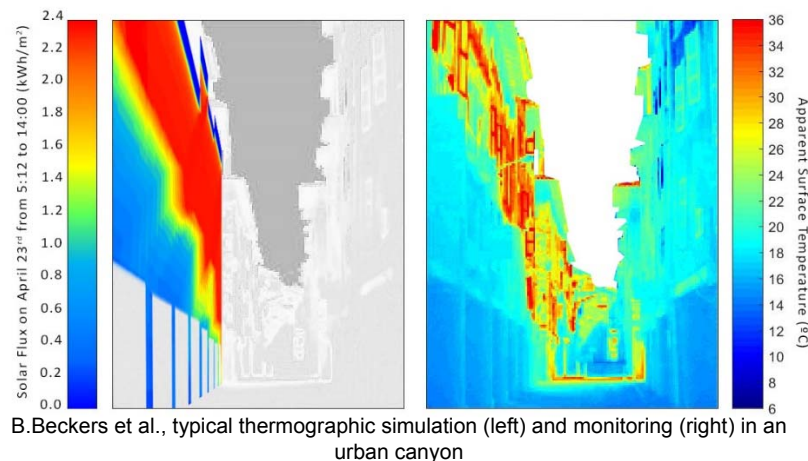


Winter school

Architecture and Urban Physics IV: radiation, climate and comfort issues for a resilient design approach

29/01 – 8/02.2020

Valentino Castle, Politecnico di Torino, Turin, Italy



Programme

29th January

9.00-11.00 – opening event and welcome coffee

11.00-11.30 – PoliTO and DAD welcome (institutional)

11.30-13.00 – Workshop introduction and lecture 'From fossil to renewable cities'

Giacomo Chiesa (PoliTO)

13.00-14.00 – students' interaction time

14.00-16.15 – Lecture 'Climate modelling: from global to local scale'

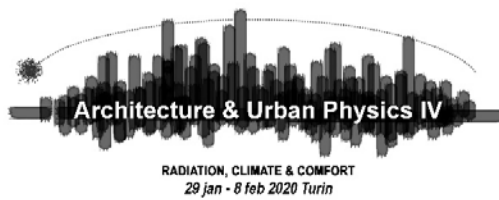
Jost von Hardenberg (PoliTO)

16.15-16.30 – students' interaction time

16.30-18.30 – Lecture 'Architecture and Urban Physics: an introduction'

Benoit Beckers (UPPA, France)

18.30-19.30 – Visit to the winter school main project site



30th January

9.00-11.00 – Lecture ‘Natural Light and Heat Modeling for complex urban Geometries’

Benoit Beckers (UPPA, France)

11.00-11.30 – students’ interaction time

11.30-13.30 – Lecture ‘Urban Heat Island phenomenon and simulation tools’

Michele Morganti (PoliMI, Italy)

13.30-14.30 – students’ interaction time

14.30-17.00 – parallel students’ activities on climate urban impact:

a. reading future modelled climate data for urban design purpose (python coding)

b. morphing climate data to include urban morphological aspects (UWG)

17.00-18.30 – students’ interdisciplinary discussion

31st January

9.00-11.00 – Lecture ‘Computer-based calculation for solving geometric radiation problems’

Benoit Beckers (UPPA, France)

11.00-11.30 – students’ interaction time

11.30-13.30 – Lecture ‘Heliodon2: a tool to control energy and visual aspects in urban project’

Michele Morganti (PoliMI, Italy)

13.30-14.30 – students’ interaction time

14.30-17.00 – parallel students’ activities on climate urban impact and urban radiation phenomena

a. testing computer coding for solving geometric problems (python/matlab coding)

b. approach Heliodon2 for studying energy and visual aspects in an urban context

17.00-19.00 – students’ interdisciplinary discussion

1st February

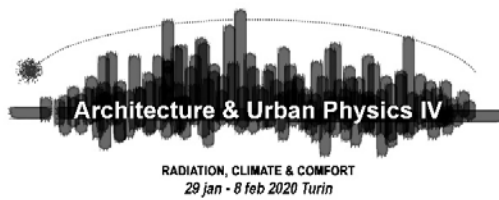
9.00-11.00 – Lecture ‘Urban thermography’

Elena Garcia-Nevado (UPPA, France)

11.00-13.30 – students’ activities using thermography in urban environments

13.30-14.30 – student’s interaction time

14.30-17.00 – visit to Turin city (from Roman to 1500) / UrbanCentre



2nd February

9.00-13.00 – visit to Turin city (XVII-XIX centuries)

13.00-14.00 – students' interaction time

14.00-16.30 – visit to Turin city (XX-XXI centuries)

3rd February

9.00-11.00 – Lecture 'Comfort models and monitoring instruments'

Giacomo Chiesa (PoliTO)

11.00-11.30 – students' interaction time

11.30-13.30 – Lecture 'Urban Microclimate and outdoor thermal comfort aspects'

David Pearlmutter (Ben-Gurion University, Israel)

13.30-14.30 – students' interaction time

14.30-17.00 – 1st promenade (comfort monitoring and perception) - afternoon

17.00-18.45 – students' exercise activities (continuation)

18-45-20.30 – cocktail event

4th February

9.00-11.00 – Lecture 'Urban wind introduction and simple models'

Giacomo Chiesa (PoliTO)

11.00-11.30 – students' interaction time

11.30-13.30 – 'Urban comfort through vegetation'

Katia Perini (UniGE)

13.30-14.30 – students' interaction time

14.30-18.00 – visit to 'Museo Nazionale del Cinema' and Mole Antonelliana + the cupola ascent

21.00-22.30 – 2nd promenade (comfort monitoring and perception) - night

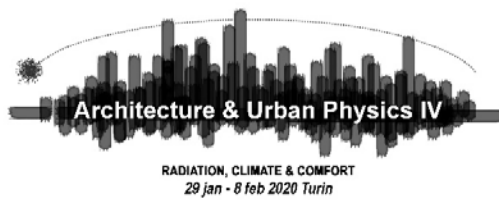
Starting thermocamera marathon – the dynamic radiative behaviour of an urban canyon

5th February

9.00-11.00 – 3rd promenade (comfort monitoring and perception) - morning

11.00-13.00 – Lecture 'From urban physics simulations to resilient design: the site microclimate matrix approach to building programming'

Giacomo Chiesa (PoliTO)



13.00-14.00 – students' interaction time

14.00-16.00 – visit to Lastin Lab (PoliTO), Microclimate section – physical Heliodon facility

16.00-18.30 – students' exercise activities (continuation)

Ending thermocamera marathon

6th February

9.00-11.00 – students' exercise activities (continuation) – finalizing climate urban data

11.00-11.30 – students' interaction time

11.30-13.30 – Discussion activity: connecting climate morphed data with energy simulations, performance-driven design and optimisation

13.30-14.30 – students' interaction time

14.30-18.30 – students' exercise activities (continuation)

a. parametric energy/comfort analysis on sample buildings in the built environment (python coding)

b. promenade data elaboration (databases and GIS)

c. thermocamera marathon data elaboration

7th February

9.00-11.00 – students' exercise activities (continuation)

11.00-11.30 – students' interaction time

11.30-13.00 – students' exercise activities (continuation)

13.00-14.00 – students' interaction time

14.00-18.30 – finalizing students' exercise activities and parallel predisposition of final outputs

20.00-23.00 – dinner event

8th February

9.00-12.30 – final event including the presentation of winter school outcomes by students, short presentations by PhD students on their research on urban issues, Professors' research visions and projects on the schools topics.

12.30-13.00 – arrivederci

*The school is coordinated by Giacomo Chiesa and co-coordinated by Benoit Beckers; lectures, students' exercise activities and discussions will be followed by Giacomo Chiesa (PoliTO), Benoit Beckers (UPPA), Elena Garcia-Nevado (UPPA), Michele Morganti (PoliMI), David Pearlmutter (Ben-Gurion), Katia Perini (UniGE), and Jost von Hardenberg (PoliTO). Angela Lacirignola will help during the visit at the LASTIN lab, DAD, PoliTO.

Info: giacomo.chiesa@polito.it