

PHD SUMMER SCHOOL MONT-SOLEIL

12TH - 17TH AUGUST 2024

FIELD-BASED INSIGHTS INTO THE IMPLEMENTATION OF RENEWABLE ENERGIES

MONDAY 12.08

CLIMATE AND ENVIRONMENTAL PHYSICS

- 13:00 Check-in at the University of Bern, Climate and Environmental Physics
- 14:00 **Introduction**
Prof. Drazen Dujic, Co-chairman / Professor EPFL, Lausanne
Prof. Christof Bucher, Co-chairman / Professor Bern University of Applied Sciences, Biel/Bienne
Prof. hon. Alfred Rufer, Program Director / hon. professor EPFL, Lausanne
Christian Ochsenbein, Technical Director / Bern University of Applied Sciences, Biel/Bienne
Moussia de Watteville, Director Espace Decouverte Energie, St. Imier
- 14:30 **Climate Change and the 1.5°C Goal of the Paris Agreement**
Prof. Thomas Frölicher, University of Bern
- 16:00 **Visit to the Laboratories of Climate and Environmental Physics**
- 18:00 Transfer to the region of Mont-Soleil
- 19:00 Check-in accommodation
- 20:00 **Welcome dinner by the City of Saint-Imier**
Introduction by Espace Decouverte Energie, Moussia de Watteville, Director

TUESDAY 13.08

WIND ENERGY AND HYDROPOWER

- 07:30 Transfer to Viewpoint Chasseral 1'600 m.a.s.l.
JUVENT Wind Power Plant, Landscape and public acceptance, excursion
Dr. Martin Pfisterer, founding President of JUVENT SA
- 09:30 Return to Mont-Soleil
- 11:00 **Mont-Soleil – region, history, and chances for the future**
Dr. Martin Pfisterer, Pres hon Société Mont-Soleil
- 11:30 **Assessing Wind Resources in Complex Terrain**
Dr. Paul Froidevaux, Senior Expert Wind & Ice, Meteotest, Bern
- 12:30 Lunch
- 13:30 **Hydropower technology for a flexible and reliable power system**
Dr. Elena Vagnoni, Head of Projets Group, Hydraulic Machines Platform at EPFL, Lausanne
- 14:45 Coffee break
- 15:15 **Hydropower deployment for energy storage in Nant de Drance**
Alexander Schwery, Head of chief office at GE Renewable Energy
- 16:30 **Excursion and visit to a hydropower plant at the Doubs River**
Cédric Zbinden, CEO La Goule SA, Saint-Imier
- 18:30 Dinner on the river Doubs, offered by La Goule SA
- 20:30 Return to the accommodation

WEDNESDAY 14.08 PHOTOVOLTAICS & GROUP WORK

- 08:00 **PV Cells and Modules**
Prof. Christof Bucher, Bern Univ. Applied Sciences, Burgdorf
- 08:45 **Mont-Soleil PV Power Plant: From lighthouse installation to long-term benchmarking**
Prof. Christof Bucher, Bern Univ. Applied Sciences, Burgdorf
- 09:15 **Mont-Soleil PV Plant – technical visit**
Prof. Christof Bucher with support Monique Voumard
- 10:00 Coffee break
- 10:30 ***'Mont-Soleil group work.'***
presentation of the 'Mont-Soleil' tasks and organization, work session 1
- 12:00 Lunch
- 13:15 ***'Mont-Soleil group work', work session 2***
- 15:00 Coffee break
- 15:30 ***'Mont-Soleil group work', presentations by the groups***
- 17:00 **Visit to JUVENT windfarm**
Monique Voumard, plant information manager Mont-Soleil, BKW
- 18:00 Return to the accommodation

13:15 Parallel session for partners and media

7 ans école doctorale Mont-Soleil, bilan et perspective
Alfred Rufer (Program Directeur) et Moussia de Watteville (Espace Decouverte Energie)

état des travaux des projets de recherche dans la région de Mont-Soleil
Christof Bucher (BFH), Laurent Raeber (Swiss Energy Park), Christian Ochsenbein (SIPBB)

THURSDAY 15.08 ELECTRICAL GRID INTEGRATION AND ADVANCED PV TECHNOLOGIES

- 08:00 **Introduction**
Prof. hon. Alfred Rufer, Co-chairman / EPFL, Lausanne
- 08:05 **Impact of battery energy storage systems on bulk power system's frequency dynamics**
Prof. Mario Paolone, Distributed Electrical Systems Lab, EPFL, Lausanne
- 09:15 Coffee break
- 09:45 **High power medium voltage converters for renewable applications**
Prof. Drazen Dujic, Power Electronics Laboratory, EPFL, Lausanne
- 11:15 **Energy Scenarios for Switzerland**
Prof. Gabriela Hug, Power Systems Laboratory, ETH, Zurich
- 12:30 Lunch
- 13:15 Departure for CSEM/EPFL Neuchâtel
- 14:00 **Design of High-Efficiency Solar Cells**
Prof. Christophe Ballif, PV-Lab, EPFL, Neuchâtel
Dr Bertrand Paviet-Salomon, PV-Lab, EPFL, Neuchâtel
- 15:00 Coffee break
- 15:30 **Visit of the Photovoltaic Laboratories CSEM/EPFL Neuchâtel**

- 17:00 Departure to Saint-Imier
- 18:00 **Energy Autonomous Concept for Cheese Making**
Cédric Spielhofer, CEO Fromageries Spielhofer, Sonvilier
- 18:30 Cheese fondue dinner
- 20:00 Return to the accommodation

FRIDAY 16.08 ENERGY STORAGE

- 07:30 Transfer to the BFH Energy Storage Research Centre at Switzerland Innovation Park Biel/Bienne
- 08:30 **Energy Storage and Efficiency – The Theory of the Ragone Representation**
Prof. hon. Alfred Rufer, Co-chairman / EPFL, Lausanne
- 09:15 Coffee break
- 09:30 **Performance (SoC) and Life Cycle (SoH) Modeling of Li-Ion Batteries**
Prof. Priscilla Caliandro, Bern University of Applied Sciences
- 10:30 **BFH/SIPBB Battery Testing Lab and SIPBB De-Manufacturing Lab – Visit and Demonstrations**
Prof. Priscilla Caliandro, Bern University of Applied Sciences
Christian Ochsenbein, Switzerland Innovation Park Biel/Bienne
- 12:00 Lunch
- 13:45 **Power Quality in Distribution Grids Related to RES and Power Electronics**
Prof. Stefan Schori & Ron Buntschu, BFH Power Grids Lab, Biel/Bienne
- 15:30 Transfer to Grindelwald
- 17:30 Hotel check-in, Eiger Lodge Grindelwald
- 18:15 **Jungfrau Region and the Glaciers, presentation**
Bruno Hauswirth, Director Resort Grindelwald
Aperitif with Diploma ceremony, followed by Alpine dinner at Hotel Eiger Grindelwald
Prof. hon. Alfred Rufer, Program Director / EPFL, Lausanne

SATURDAY 17.08 HIGH ALTITUDE RESEARCH STATION JUNGFRAUJOCH 3500 M A.S.L.

- 08:00 Departure from Grindelwald (Grund) to Jungfraujoch / Top of Europe
- 09:00 **High Altitude Research Station Climate change, long-term high-altitude CO2 measurements**
Sonja Stöckli and Thomas Furter, High Altitude Research Station Jungfraujoch

Visit and guided tour through the High-Altitude Research Labs
- 12:00 **End of Summer School at Jungfraujoch / Top of Europe**

PROCESS OF APPLICATION AND DECISION

Publication of the final program with application form

www.bfh.ch/mont-soleil

until May 31st, 2024

Application

PhD and Master's students are requested to send in their application forms to the Technical Director: christian.ochsenbein@bfh.ch

Payment / final decision of participation

After registration, you will receive a confirmation within a week and an invoice, which must be paid within 20 days.

Students are accepted on a first-come, first-served basis. Places are limited.

ADMINISTRATION, ADDRESS AND FEES

Address

PhD Summer School Mont-Soleil
c/o Institute for Energy and Mobility Research IEM
Bern University of Applied Sciences
Christian Ochsenbein,
CH 2503 Biel/Bienne, Switzerland

christian.ochsenbein@bfh.ch
+41 76 234 40 54

Fees

Academic part PhD and Master students:	CHF 500.-
PhD students EPFL and Master students BFH:	CHF 0.-
Others:	CHF 900.-

Lodging and convenience for all participants: Including all accommodations, events, transport, meals, trains for the Grindelwald/Jungfrauoch visit.	CHF 700.-
--	-----------

Lodging

Accommodations in a rural lodging on Mont-Soleil and Grindelwald

Chasseral Outdoor:

<https://www.chasseraloutdoor.ch/>

Eiger Lodge Grindelwald

<https://www.eigerlodge.ch/en/>

The summer school administration organizes the lodging reservation.

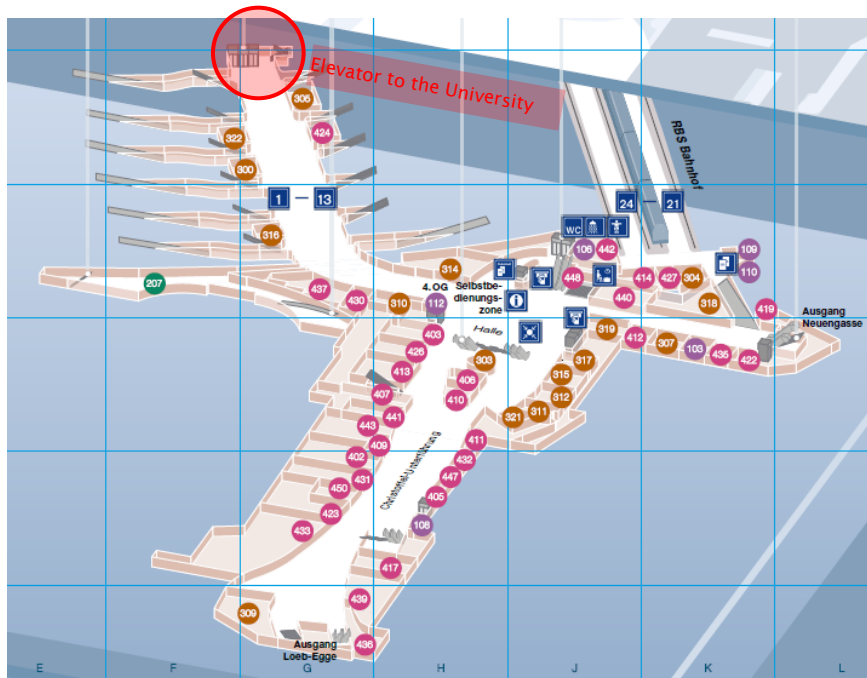
CHECK-IN AT SUMMER SCHOOL ON MONDAY 12.08.2024 AT 13:00

Address: Building “Exakte Wissenschaften”, University of Bern, Sidlerstrasse 5, 3012 Bern
Room B005 – follow the signs.

Bern can easily be reached by public transport. Both international airports in Zurich and Geneva have their train stations.

The Swiss Federal Railways provide an easy-to-use journey planner for public transport in Switzerland (see www.sbb.ch/en/timetable.html).

In Bern's main station, there is an elevator to the University of Bern (circled red in the map below)



Having reached the top floor, you can walk to the check-in in the building ExWi. (see map below)



OEC2, 28.03.2024