

## 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](http://www.bfh.ch/mont-soleil)

until May 31<sup>st</sup>, 2024

#### Application

PhD and Master's students are requested to send in their application forms to the Technical Director: [christian.ochsenbein@bfh.ch](mailto: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](mailto: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.-
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### 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.**

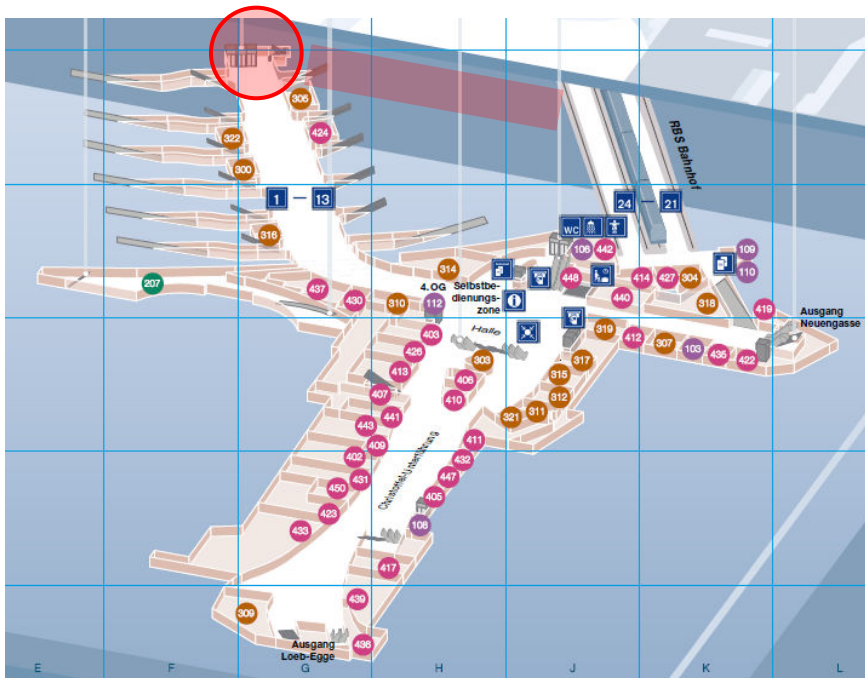
CHECK-IN AT SUMMER SCHOOL ON MONDAY 12.08.2024 AT 13:00

**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](http://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