

Academia Raetica

SWITZERLAND



9<sup>th</sup> conference

# Graubünden forscht

Davos Congress Centre, Hall Aspen

November 8-9, 2024

## Mittag der Forschung Science Noon

November 9, 11:45 AM to 2:00 PM

Education and research. **graubünden**

# Friday, November 8, 2024

## 08:00-09:30 Registration & "Znüni"

---

### 09:30-10:00 Welcome and opening

Allgöwer, Britta	President Academia Raetica
Favre Accola, Valérie	Vice President of the Cantonal Parliament of Graubünden & Head of Regional Development, Region Prättigau / Davos
Haller Rupf, Barbara	Director Academia Raetica

---

### 10:00-10:30 Insights from ETH Studio Davos

**Chair:** Barbara Haller Rupf

#### How machine learning improves research in solar physics

Barczynski, Krzysztof	Physikalisch-Meteorologisches Observatorium Davos / World Radiation Center, ETH Zurich
-----------------------	-------------------------------------------------------------------------------------------

#### Machine learning techniques in solar jet detection

Jentgens, Henrik & Moll, Rémy	ETH Zurich ETH Zurich
----------------------------------	--------------------------

#### ETH Studio Davos: Students aiming high

Bärenfaller, Katja	Swiss Institute of Allergy and Asthma Research (SIAF), University of Zurich
--------------------	-----------------------------------------------------------------------------

---



Scan to read abstracts

## 10:30-10:45 Break

---

### 10:45-11:45 Session 1 (Aspen I) Natural Sciences, Robotics, and Photonics

**Chairs:** Britta Allgöwer, Academia Raetica & Ruzica Dadic

WSL Institute for Snow and Avalanche Research SLF

#### Why does a snow scientist bring a saw and black ink on a field trip?

Walet, Melin	WSL Institute for Snow and Avalanche Research SLF
--------------	---------------------------------------------------

#### A century of rewilding

von Büren, Raphael	Swiss National Park
--------------------	---------------------

#### Quantitative analysis of forest windfall damage using aerial ortho-imagery

Schüssler, Jan	University of Applied Sciences of the Grisons
----------------	-----------------------------------------------

#### Ground-based solar radiation measurements and the study of atmospheric aerosols

Karanikolas, Angelos	Physikalisch-Meteorologisches Observatorium Davos / World Radiation Center
----------------------	----------------------------------------------------------------------------

---



Scan to read abstracts

### 10:45-12:00 Session 2 (Aspen II) Medicine and Life Sciences

**Chairs:** Mirjam Schenk, CK-CARE Christine Kühne-Center for Allergy Research and Education &

Willem Van de Veen, Swiss Institute of Allergy and Asthma Research (SIAF)

#### An allergic twin is different from a healthy one, right?

Schneider, Stephan	Swiss Institute of Allergy and Asthma Research (SIAF), University of Zurich
--------------------	-----------------------------------------------------------------------------

#### Characterising 'sugared' proteins with mass spectrometry

Sun, Xindong	Swiss Institute of Allergy and Asthma Research (SIAF), University of Zurich
--------------	-----------------------------------------------------------------------------

#### Sprint-Interval-Training under hypoxia in persons with Multiple Sclerosis: A feasibility study

Riegel, Franziska	Kliniken Valens
-------------------	-----------------

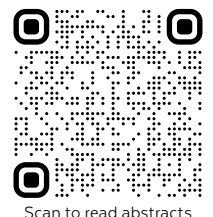
#### Low-level laser therapy in patients with head and neck tumour undergoing radio- or radiochemotherapy

Litscher, Hanna	Kantonsspital Graubünden
-----------------	--------------------------

#### Spatial transcriptomics to study fracture healing in mouse models

Giger, Nico	AO Research Institute Davos
-------------	-----------------------------

---



Scan to read abstracts

## 11:45-13:00 Lunch

---

### 13:00-14:00 Session 3a (Aspen I) Medicine and Life Sciences

**Chairs:** Katja Bärenfaller, Swiss Institute of Allergy and Asthma Research (SIAF) / University of Zurich &

Esther Wehrle, AO Research Institute Davos

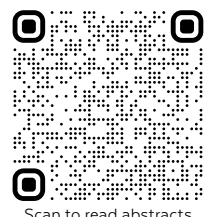
#### Sex bias in intervertebral disc degeneration (IDD) and osteoarthritis (OA) research

Zunccheddu, Daniele	AO Research Institute Davos
---------------------	-----------------------------

#### How flexible are neutrophils to opposing signaling in atopic dermatitis?

Diedro, Mel	CK-CARE Christine Kühne-Center for Allergy Research and Education
-------------	-------------------------------------------------------------------

---



Scan to read abstracts

**Strategies for flow cytometric profiling of BCR immunoglobulin heavy chain isotypes: comparing Fc receptor blocking agents**

Ardicli, Ozge Swiss Institute of Allergy and Asthma Research (SIAF)

**B cells expressing histamine receptor 1 or 2**

Yang, Minglin Swiss Institute of Allergy and Asthma Research (SIAF)

**13:00-14:00 Session 4 (Aspen II) Education and Humanities**

**Chairs:** Sog Yee Mok, Pädagogische Hochschule Graubünden & Ana Petrus, University of Applied Sciences of the Grisons

**Orbita: a new textbook for teaching Italian in the Canton of Grisons**

Giudici, Alberto & Pädagogische Hochschule Graubünden  
Manetti, Elisa Désirée Pädagogische Hochschule Graubünden, SUPSI DFA/ASP

**Border experiences in the microcosm Graubünden**

De Piante Vicin, Paola University of Zurich / Institut für Kulturforschung Graubünden

**A comprehensive study of requirements engineering in Switzerland**

Moravánszky, Anthea University of Applied Sciences of the Grisons

**Development of a test instrument for assessing flexible calculation strategies in third grade math**

Viertler, Karin Pädagogische Hochschule Graubünden, FHNW, PHSG



Scan to read abstracts

**14:00-14:10 Short break**

**14:10-14:50 Session 3b (Aspen I) Medicine and Life Sciences**

**Chairs:** Katja Bärenfaller, Swiss Institute of Allergy and Asthma Research (SIAF) / University of Zurich & Esther Wehrle, AO Research Institute Davos

**The effect of L-phenylalanine on CD4+ T cell activity**

Kulkarni, Abhijeet Swiss Institute of Allergy and Asthma Research (SIAF)

**The gut microbiome metabolite heals the skin and gut epithelial barrier and shows anti-inflammatory effects**

Pat, Yagiz Swiss Institute of Allergy and Asthma Research (SIAF)

**Decellularized extracellular matrix-based hydrogel enhances chondrocyte redifferentiation in vitro and ex vivo**

Xu, Jiangyao AO Research Institute Davos



Scan to read abstracts

**HAMILTON** | **HAMILTON MEDICAL**

Ich weiss, wo ich hinwill. **Du?**

Wir suchen motivierte Teamplayer mit neuen Ideen.  
**Bewirb dich!**

Flavio

jobs.hamilton.ch

TOP OF THE JOB

**DAVOS WISSENSSTADT**

**WORLD ECONOMIC FORUM**

**Vorschau WEF 2025**  
Ein Blick hinter die Kulissen für die Davoser Bevölkerung und interessierte Gäste

Eine Informationsveranstaltung der Wissensstadt Davos  
moderiert von Urs Gredig  
mit WEF-Geschäftsleitungsmitglied Alois Zwinggi

**Mittwoch, 20. November 2024**  
um 19.30 Uhr in der Aula SAMD, Guggerbachstrasse 2, 7270 Davos  
Der Eintritt ist kostenlos. Wir freuen uns auf Sie!

[www.wissensstadt.ch](http://www.wissensstadt.ch)  
Wissensstadt Davos, Bergstrasse 1, Postfach, 7270 Davos Platz, info@wissensstadt.ch

## 14:10-14:50 Session 5 (Aspen II) Unveiling eosinophilic esophagitis: Our journey to understand a rare disease

**Chairs:** Sibylle Grad, AO Research Institute Davos &

Milena Sokolowska, Swiss Institute of Allergy and Asthma Research (SIAF)

Bel imam, Manal

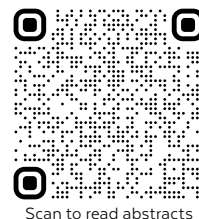
Swiss Institute of Allergy and Asthma Research (SIAF)

Du, Hang

Swiss Institute of Allergy and Asthma Research (SIAF)

Marchi, Nicolò

CK-CARE Christine Kühne-Center for Allergy Research and Education



## 14:50-15:00 Short break

## 15:00-15:30 Panel discussion

### Responsible research: Ensuring ethical standards in science

**Moderation:** Barbara Haller Rupf, Academia Raetica

Bschir, Karim

University of St. Gallen (HSG)

Marxer, Curdin

University of Applied Sciences of the Grisons, DAViS

Ruttner-Jansen, Pia

WSL Institute for Snow and Avalanche Research SLF

Zunccheddu, Daniele

AO Research Institute Davos

## 15:30-15:45 Break

## 15:45-16:45 Session 6 (Aspen I) Medicine and Life Sciences

**Chairs:** Sibylle Grad, AO Research Institute Davos &

Willem Van de Veen, Swiss Institute of Allergy and Asthma Research (SIAF)

**A mechanical stimulated 3D in vitro model for treating osteoarthritis**

Meng, Huan

AO Research Institute Davos

**High-throughput proteomics in lymphoma - Mechanistic insights and clinical applications**

Chatterjee, Lopamudra

Swiss Institute of Allergy and Asthma Research (SIAF)

**Metabolic regulation of epithelial RIG-I signaling in viral exacerbations of asthma**

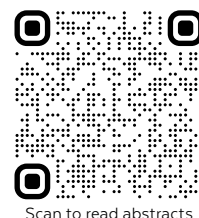
Radzikowska, Urszula

Swiss Institute of Allergy and Asthma Research (SIAF)

**Developing a new platform for drug delivery**

Simboro, Hadja

CK-CARE Christine Kühne-Center for Allergy Research and Education



## 15:45-17:00 Session 7 (Aspen II)

### Natural Sciences, Robotics, and Photonics

**Chairs:** Hannes Merbold, University of Applied Sciences of the Grisons &

Matthias Müller, Pädagogische Hochschule Graubünden

**Monocular visual odometry**

Seeli, Mirco

University of Applied Sciences of the Grisons

**Davos - Digital analysis of townscapes in GIS**

Hänni, Oliver

University of Applied Sciences of the Grisons

**Avalanche safety for roads: Probability maps of avalanche run-out distance**

Glaus, Julia

WSL Institute for Snow and Avalanche Research SLF

**Avalanche safety for roads: Mapping and monitoring snow depth distribution in an avalanche release area**

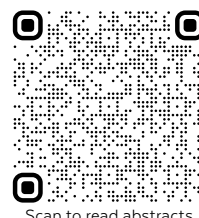
Ruttner-Jansen, Pia

WSL Institute for Snow and Avalanche Research SLF

**Solid Geometry Modelling: 3D printing helps to find more than one solution**

Weißing, Benjamin

Free University of Bozen-Bolzano



## 17:15-19:15 Aperitif, guided tour of the ice stadium Davos, ice stock sport\*

## 19:30 Conference dinner at Restaurant 1921 at ice stadium Davos\*

\* not public

# Saturday, November 9, 2024

09:00-10:00 Registration & "Znüni"

10:00-10:15 Opening

10:15-11:45 Session 8 (Aspen I) Vielfältige Forschung - Vorträge auf Deutsch

**Chairs:** Oscar Eckhardt, Institut für Kulturforschung Graubünden &

Peter Bebi, WSL Institute for Snow and Avalanche Research SLF

**Bergwälder als Bedeutungsträger in der Bündner Literatur des 20. Jahrhunderts**

Schmid, Michael D. University of Zurich, Institut für Kulturforschung Graubünden

**Buchdrucker in Gebirgswäldern im Kanton Graubünden: Herausforderungen und Chancen**

Banzer, Theresa WSL Institute for Snow and Avalanche Research SLF

**Bergwald im Wandel: Analyse der räumlichen Verschiebung der Waldverjüngung über die Zeit**

Schmid, Manuel Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences HAFL

**Bestimmte Immunzellen unterscheiden Patienten mit infizierten Knochenbrüchen von geheilten Kontrollpersonen**

Fehrenbach, Pia AO Research Institute Davos

**Vergleich maschineller Lernalgorithmen zur Verhaltensklassifizierung von Rothirschen mit Beschleunigungsdaten**

Bar-Gera, Benjamin Zurich University of Applied Sciences

**Das (r) der oberen Surselva: ein unliebsamer regionaler und sozialer Marker im Schweizerdeutschen?**

Büchler, Andrin Pädagogische Hochschule Graubünden



Scan to read abstracts

10:15-11:45 Session 9 (Aspen II) Diverse research - Talks in English

**Chairs:** Lucas Lombriser, University of Geneva &

Helena Jambor, University of Applied Sciences of the Grisons, DAViS

**Driving forces of land cover change in the Kauner valley and Martell valley since the 1950s**

Sartori, Mattia EURAC Research

**Evaluating the efficacy of pretrained large language models for automated ICD-10 diagnosis coding**

Marxer, Curdin University of Applied Sciences of the Grisons, DAViS

**What links volcanic and solar eruptions?**

Jörimann, Andrin Physikalisch-Meteorologisches Observatorium Davos / World Radiation Center

**How common food emulsifiers are breaking down your gut's defense**

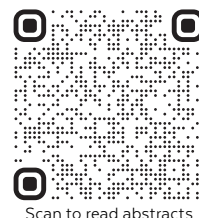
Yazici, Duygu Swiss Institute of Allergy and Asthma Research (SIAF)

**Is your sports routine protecting your health or pushing your immune system to its limit?**

Barletta, Elena Swiss Institute of Allergy and Asthma Research (SIAF)

**Effects of exercise-based cardiac rehabilitation on body composition of cardiovascular patients**

Petrasch, Gloria Hochgebirgsklinik Davos



Scan to read abstracts

We thank our sponsors:



# MITTAG DER FORSCHUNG / SCIENCE NOON

11:45-12:00 Eröffnung «Mittag der Forschung» / Opening "Science Noon"

Wilhelm, Philipp

Mayor of the Municipality of Davos

12:00-14:00 Ausstellung der Forschungsinstitute, Hochschulen und Kliniken

**Exhibition of research institutes, universities and clinics**

AO Research Institute, CK-CARE AG, CSEM Landquart, Fachhochschule Graubünden, Hochgebirgsklinik Davos AG, Institut für Kulturforschung Graubünden, Pädagogische Hochschule Graubünden, Physikalisch-Meteorologisches Observatorium Davos / Weltstrahlungszentrum, Psychiatrische Dienste Graubünden, Schweizerisches Institut für Allergie- und Asthmaforschung, Spital Davos / Davos Sports & Health, SUPSI Landquart Rehabilitation and Exercise Science Laboratory (RES Lab), Theologische Hochschule Chur, UNESCO Welterbe Tektonikarena Sardona

14:00-15:30 Session 10 (Aspen I) Vielfältige Forschung - Vorträge auf Deutsch

**Chairs:** Barbara Haller Rupf, Academia Raetica & David Niederseer, Hochgebirgsklinik Davos

**«Unheimliche Eistrümmer» - Oder: Wie liest man eine historische Beschreibung des Morteratschglatschers in Zeiten der Klimaerwärmung?**

Bantli, Jann Duri                      Institut Kulturen der Alpen (Universität Luzern), Institut für Kulturforschung Graubünden

**Die Strahlungsbilanz über Schnee im Gebirge**

Mödl, Anja                              École Polytechnique Fédérale de Lausanne, WSL Institute for Snow and Avalanche Research SLF

**Der Klimawandel lässt alpine Wiesen früher spriessen**

Zehnder, Michael                      WSL Institute for Snow and Avalanche Research SLF

**Der Einfluss von Föhn auf kardiovaskuläre Parameter**

Hanselmann, Selina                      Private University in the Principality of Liechtenstein

**Proteomik minimalinvasiver Hautproben - Neue Wege in der personalisierten Dermatologie**

Gessner, Philipp                        Swiss Institute of Allergy and Asthma Research (SIAF)

**Auswirkungen von Achtsamkeitsübungen auf die mentale Gesundheit, Lebensqualität und Risikofaktoren bei kardiovaskulären Patienten**

Brito da Silva, Hadassa                      Hochgebirgsklinik Davos



Scan to read abstracts

14:00-15:30 Session 11 (Aspen II) Diverse research - Talks in English

**Chairs:** Britta Allgöwer, Academia Raetica & David Schmid, CSEM

**Assessing snow water equivalent reconstruction using satellite data and hydrological models in alpine regions**

Bozzoli, Michele                        EURAC Research, University of Trento

**Spatiotemporal variability of turbulent fluxes in snow-covered mountain terrain**

Engbers, Rainette                        WSL Institute for Snow and Avalanche Research SLF

**Exploring the relationship between mechanical forces and biological outcome in a cartilage model**

Mecchi, Laura                            AO Research Institute Davos

**Innovative bone materials promote bone formation and simultaneously reduce the inflammatory response**

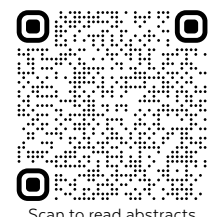
Ardicli, Sena                              Swiss Institute of Allergy and Asthma Research (SIAF)

**Analysis of eligibility of the S1 corridor for the trans-sacral screw placement in geriatric patients**

Polt, Maksym                              Kantonsspital Graubünden

**A CRISPR-based assay for the detection of monoclonal antibodies**

Del Giovane, Stefano                      CSEM



Scan to read abstracts

15:30-15:45 Break

15:45-16:30 Keynote

**From Graubünden to NASA: Searching for life in the outer solar system**

Kehl, Florian                              University of Zurich, ETH Zurich

16:30-17:00 Recognition of recent PhD graduates and conference awards for the best scientific presentations

17:00 Aperitif

# Wissenschaftsquiz am Samstag, 9. November

Nutze die Gelegenheit, dein Wissen zu testen! Unter den Teilnehmerinnen und Teilnehmern, welche die meisten Fragen zu den Vorträgen in den Sessions 8 bis 11 korrekt beantworten, verlosen wir attraktive Preise. Wähle aus drei möglichen Antworten die richtige aus. Der Hauptpreis ist eine **SAISONKARTE FÜR DEN WINTER 2024/25 FÜR ZWEI PERSONEN IM SKIGEBIET SLOWMOUNTAIN SCHATZALP-STRELA IM WERT VON CHF 660.00.**

Zur Teilnahme scanne bitte den QR-Code oder besuche diesen Link: <https://app.sli.do/event/p3HhpdU45qEWvvm4BGMKob>. Um die Fragen zu beantworten, wähle die entsprechende Session (8 bis 11) aus. Das Onlinequiz ist nur während der Sessions geöffnet. Eine Vorschau auf die Fragen findest du unter dem jeweiligen Abstract: <https://gr-forscht.ch/abstracts>. Die Gewinnerinnen und Gewinner werden bis zum 25. November per E-Mail benachrichtigt.

## Science Quiz on Saturday, November 9

Take the opportunity to test your knowledge! Among the participants who answer the most questions correctly from the talks in sessions 8 to 11, we will be giving away attractive prizes. Choose the correct answer from the three options provided. The grand prize is a **SEASON PASS FOR WINTER 2024/25 FOR TWO PEOPLE AT THE SLOWMOUNTAIN SCHATZALP-STRELA SKI AREA, VALUED AT CHF 660.00.**

To participate, please scan the QR code or visit this link: <https://app.sli.do/event/p3HhpdU45qEWvvm4BGMKob>.

To answer the questions, select the respective session (8 to 11). The online quiz is only open during the sessions. You can find a preview of the questions under each respective abstract: <https://gr-forscht.ch/en/abstracts>.

Winners will be notified via email by November 25.



SCAN TO WIN

Wir danken sehr herzlich für das Sponsoring  
We sincerely thank you for the sponsorship:

**SCHATZALP**

Für die  
beste Zukunft  
aller Zeiten.

Für Lisa.

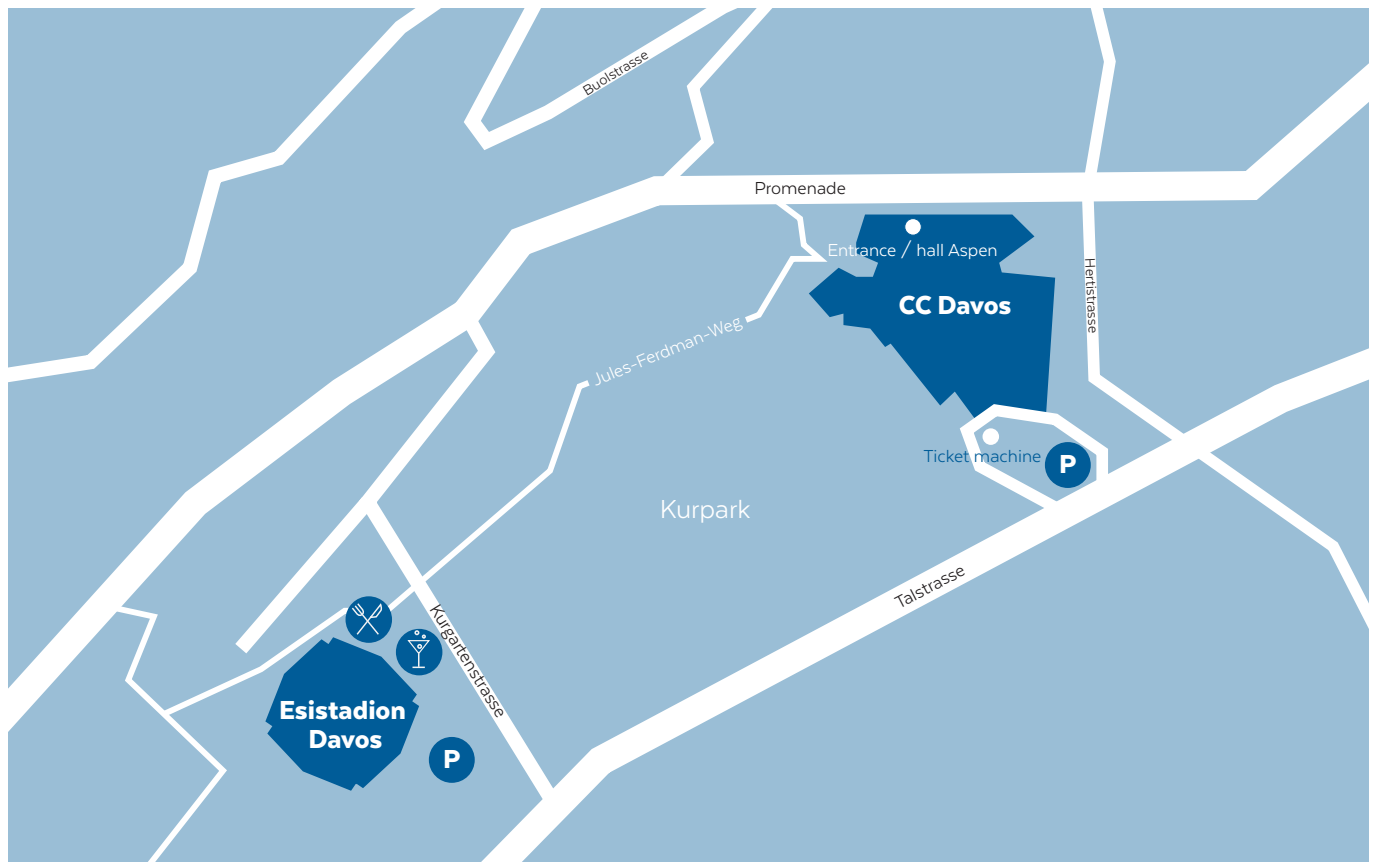
[zukunft.gkb.ch](https://zukunft.gkb.ch)



Graubündner  
Kantonalbank

# Information around the conference

“Graubünden forscht” takes place at the Congress Centre Davos, hall Aspen, Promenade 90, Davos Platz. Use the main entrance at Promenade. Public parking is accessed from Talstrasse. Buy discounted parking tickets (1 day: CHF 8.00, 2-3 days: CHF 10.00) by using the ParkingPay app. Select “Davos Platz”, zone “13 Kongress”, and “Bewilligung”.



**Visitor Registration:** [gr-forscht.ch/anmeldung-besucher](http://gr-forscht.ch/anmeldung-besucher)

## Welcome Desk

Friday, November 8, 08:00-17:00

Saturday, November 9, 2024, 09:00-17:00

## Aperitif, Friday, November 8, 17:15

(not public) at Eisstadion Davos (Ice Stadium Davos)

## Conference Dinner, Friday, November 8, 19:30

(not public) at Restaurant 1921 (Eisstadion Davos), Kurgartenstrasse 6, 7270 Davos. Public parking in front.

## Conference Coordinator

Daniela Heinen

[daniela.heinen@academiaractica.ch](mailto:daniela.heinen@academiaractica.ch)

phone +41 81 410 60 84

## Conference Website

[www.gr-forscht.ch](http://www.gr-forscht.ch)

## Hospital

Spital Davos, Promenade 4, Davos Platz

phone +41 81 414 88 88

## Pharmacy

Amavita Apotheke Flüela

Bahnhofstrasse 1, Davos Dorf, phone +41 58 878 11 20

Opening hours: 08:00-18:30 (Saturday: 08:00-18:00)

Amavita Apotheke Kongress

Promenade 50, Davos Platz, phone +41 58 878 10 50

Opening Hours: 08:00-12:30, 13:30-18:30

(Saturday 08:00-17:00)

## Public Transport

Busses 301, 303, and 304 stop at “Kongresszentrum Davos”.

For timetables, see [www.sbb.ch](http://www.sbb.ch).

## Taxi

Expresstaxi, phone +41 81 410 11 11

Gotschna Taxi, phone +41 81 420 20 20

Luigi Taxi, phone +41 79 218 30 70