**Gilbert Neuner**

**Curriculum vitae**



Personal information, address and web site

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| **Name** | **Gilbert Neuner** | |
| Date of Birth | 30 March 1964 | |
| Nationality | Austria | |
| Current address and Email | Department of Botany, University of Innsbruck, Research Group Stress Physiology, Sternwartestraße 15, A-6020 Innsbruck, Austria; [Gilbert.neuner@uibk.ac.at](http://cvl.univie.ac.at/department/staff.cfm) |
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| **Current position** | **Associate Professor, University of Innsbruck, Austria** | |

Main areas of research

Gilbert Neuner`s research has a strong focus on stress physiology of alpine plants. The elevational change of environmental factors successively turns them into stress factors. Most of all, the decreasing temperature and the increasing probability of temperature extremes combined with other stress factors limit plant establishment and survival. By this, the alpine life zone is a natural laboratory for studies focusing on stress resistance and survival strategies of plants. The research focuses on frost resistance and ice propagation in plants, heat and drought resistance but also effects of excessive irradiation. In a whole plant perspective avoidance, tolerance and restitution mechanisms are considered. Knowledge about the functional ecology of alpine plants will allow a better prognosis of future distribution of plants and provides information on species-specific survival strategies and on functional models of stress resistance in plants that potentially will be transferable to crop species.

Citation Report

Published 66 ISI-listed papers and >12 book chapters, presented >100 oral and poster contributions at international conferences; H-Index = 23, cumulative IF of ~199, average citation of 21,98 per article (obtained from information on the Web of Knowledge as of April 2020); ResearcherID, J-9909-2017; ORCID, orcid.org/0000-0003-2415-6125.

**Previous research achievements**

Description of academic career and positions held to date

Academic qualifications

* 2001: Habilitation (Reader equivalent) in Botany, Faculty of Natural Sciences, University of Innsbruck, Austria
* 1991: Dr rer nat (PhD equivalent) in Botany, Department of Botany, University of Innsbruck, Austria
* 1989: Mag rer nat (MSc equivalent) in Botany, Department of Botany, University of Innsbruck, Austria

Employment history

* 2001 to current: Associate Professor, University of Innsbruck, Austria
* 1999-2009: Lecturer (General Botany), Free University of Bozen (Italy)
* 1992-2001: University Assistant, University of Innsbruck, Austria
* 1992: Postdoc, University of Otago, New Zealand
* 1990-1991: Project Assistant (OeNB-project Nr. 3657), University of Innsbruck, Austria

Most important invitations to present at scientific conferences

* **2011**: 9th International Plant Cold Hardiness Seminar, Luxembourg, 17.07 - 22.07.2011 **[Invited Lecture]**
* **2014**:10th International Plant Cold Hardiness Seminar, Poznan, 17.-21.8.2014. Freezing avoidance and ice barriers in plants **[Invited lecture]**
* **2021:** 12th International Plant Cold Hardiness Seminar, Gather town virtual, 8.-14.12.2021. Ice accumulation in plant tissues **[Invited lecture]**

Academic prize/awards received

* 1990: Forschungspreis der Landeshauptstadt Innsbruck

Most important peer review activities, editorships and/or memberships in academic organisations

* Numerous review activities for journals and funding organisations
* Deputy head of the Research Centre Ecology of the Alpine Region, University of Innsbruck
* Deputy head of the Innsbruck Doctoral College Alpine Biology and Global Change, University of Innsbruck
* Member of the Tree Physiology reviewer board

Important research projects funded in the past

* FWF Project 34844-B “Predetermined spaces of ice accumulation in plant tissues”, 1.8.2021-31.7.2025 role: Pl, **394 k€**
* FWF Project 34717-B “Plant water use under heat”, 1.11.2021-31.10.2025 role: Pl, **401 k€**
* FWF-Project P30139-B32 “Ice management and freeze dehydration of plant cells” 1.1.2018-30.06.2021, role: Pl, **398 k€**
* FWF-Project P23681-B16 “Ice barriers and supercooling in alpine plants”1.7.2011-30.06.2016, role Pl; **177 k€**
* FWF-Project P17992-B06 “Frost survival at temperatures lower than -38°C” 1.10.2005-30.09.2010, role: Pl; **232 k€**
* FWF- Project P20010-B16 “Reproduction of mountain plants under temperature stress” 1.11.2008-30.9.2013, role: Second Pl **369 k€**

Names and institutions of key international cooperation partners in the last five years

* PhD David Livingston USDA ARS, Raleigh, North Carolina, USA
* PhD Filip Kolář, Charles University, Prague, Czech Republic
* PhD Giri Joshi and PhD Biva Aryal, Tribhuvan University, Kathmandu, Nepal

Management and supervision of PhD students

* Currently (co)supervising 4 PhD thesis: Maria Ralser, Dominik Kaplenig (main supervisor), Florian Obleitner, Lisa Capponi (co-supervisor)
* Previously (co)supervised PhD thesis: Drs Matthias Stegner, Edith Kuprian, Manuel Pramsohler, Biva Aryal, Jürgen Hacker (main supervisor), Clara Bertel (co-supervisor)

**Ten most important publications**

1. Taschler D, Neuner G 2004 Summer frost resistance and freezing patterns measured in situ in leaves of major alpine plant growth forms in relation to their upper distribution boundary. Plant Cell Environment, 27, 737-746.
2. Hacker J, Neuner G 2007 Ice propagation in plants visualized at the tissue level by IDTA (infrared differential thermal analysis). Tree Physiology, 27, 1661-1670.
3. Hacker J, Spindelböck J, Neuner G 2008 Mesophyll freezing and effects of freeze dehydration visualized by simultaneous measurement of IDTA and differential imaging chlorophyll fluorescence. Plant Cell Environment, 31, 1725-1733.
4. Aryal B, Neuner G 2010 Leaf wettability decreases along an extreme altitudinal gradient. Oecologia 162, 1-9.
5. Neuner G, Xu B, Hacker J 2010 Velocity and pattern of ice propagation and deep supercooling in woody stems of Castanea sativa, Morus nigra and Quercus robur measured by IDTA. Tree Physiology, 30, 1037-1045.
6. Ladinig U, Hacker J, Neuner G, Wagner J 2013 How endangered is sexual reproduction of high-mountain plants by summer frosts? - Frost resistance, frequency of frost events and risk assessment. Oecologia, 171, 743-760.
7. Wisniewski M, Gusta L, Neuner G 2014 Adaptive mechanisms of freeze avoidance in plants. A brief update. Environmental and Experimental Botany, 99, 133-140.
8. Neuner G, Kreische B, Kaplenig D, Monitzer K, Miller R 2019 Deep supercooling enabled by surface impregnation with lipophilic substances explains the survival of overwintering buds at extreme freezing. Plant Cell Environment, 42, 2065-2074. DOI:10.1111/pce.13545
9. Neuner G, Monitzer K, Kaplenig D, Ingruber J 2019 Frost Survival Mechanism of Vegetative Buds in Temperate Trees: Deep Supercooling and Extraorgan Freezing vs. Ice Tolerance. Frontiers in Plant Science, 10, 537. DOI: 10.3389/fpls.2019.00537
10. Neuner G, Huber B, Plangger A, Pohlin J-M, Walde J 2020 Low temperatures at higher elevations require plants to exhibit increased freezing resistance throughout the summer months. Environmental and Experimental Botany, 169. DOI: 10.1016/j.envexpbot.2019.103882