

Prof. Dr. Susanne Crewell | Publications

My publication record spans a wide range of topics

- with more than 100 peer-reviewed publications as of 22 April 2021
Publons O-1640-2013: 126 publications, 2697 citations, h-index=29
Scopus: 132 Publications, 2715 citations, h-index = 29
[Google](#): 4526 citations, h-index = 40
- and book contributions/review reports related to observational techniques and the future development of measurement strategies.

Below also invited talks and specific reports of interest are given. The full list of my publications including conference contributions, talks and posters can be found at http://gop.meteo.uni-koeln.de/ag_crewell/doku.php?id=publicationspublications

Accepted peer-reviewed publications

Crewell, C., K. Ebell, P. Konjari, M. Mech, T. Nomokonova, A. Radovan, D. Strack, A. M. Triana Gomez, S. Noel, R. Scarlet, G. Spreen, M. Maturilli, A. Rinke, I. Gorodetskaya, C. Viceto, T. August, and M. Schröder, 2021: A systematic assessment of water vapor products in the Arctic: from instantaneous measurements to monthly means, *Atmospheric Measurement Techniques Discussions*, <https://doi.org/10.5194/amt-2020-491>

Jentzsch, K., A. Schulz, N. Pirk, T. Foken, S. Crewell, J. Boike, 2021: High levels of CO₂ exchange during synoptic-scale events introduce large uncertainty into the Arctic carbon budget, *Geophysical Research Letters* Peer-reviewed publications

1. Schoger, S. Y., D. Moisseev, A. von Lerber, S. Crewell, and K. Ebell, 2021: Snowfall rate retrieval for K- and W-band radar measurements designed in Hyytiälä, Finland, and tested at Ny-Ålesund, Svalbard, *Journal of Applied Meteorology and Climatology*, 60(3), 273-289, <https://doi.org/10.1175/JAMC-D-20-0095.1>
2. Böhm, C., M. Meyers, J.-H. Schween, and S. Crewell, 2020: Water vapor variability in the Atacama Desert during the 20th century, *Global and Planetary Change*, 190, 103192, <https://doi.org/10.1016/j.gloplacha.2020.103192>
3. Cantalloube, F. j. Milli, C. Böhm, S. Crewell, J. Navarrete, K. Rehfeld, M. Sarazin, and A. Sommani, 2020: The impact of climate change on astronomical observations, *Nature Astronomy*, 4, 826-829, <https://doi.org/10.1038/s41550-020-1203-3>
4. Carbajal Henken, C., L. Dirks, S. Steinke, H. Diedrich, T. August, and S. Crewell, 2020: Assessment of Sampling Effects of Various Satellite-derived Integrated Water Vapor Datasets Using GPS Measurements in Germany as Reference, *Remote Sensing*, 12(7), 1170, <https://doi.org/10.3390/rs12071170>
5. Costa-Surós, M., O. Sourdeval, C. Acquistapace, H. Baars, C. Carbajal Henken, C. Genz, J. Hesemann, C. Jimenez, M. König, J. Kretzschmar, N. Madenach, C. I. Meyer, R. Schrödner, P. Seifert, F. Senf, M. Brueck, G. Cioni, J. F. Engels, K. Fieg, K. Gorges, R. Heinze, P.K. Siligam, U. Burkhardt, S. Crewell, C. Hoose, A. Seifert, I. Tegen, and J. Quaas, 2020: Detection and attribution of aerosol-cloud interactions in large-domain large-eddy simulations with ICON, *Atmospheric Chemistry and Physics*, 20(9), 5657-5678, <https://doi.org/10.5194/acp-20-5657-2020>
6. Jacob, M., P. Kollias, F. Ament, V. Schemann, and S. Crewell, 2020: Multi-layer Cloud Conditions in Trade Wind Shallow Cumulus – Confronting Models with Airborne Observations, *Geoscientific Model Development*, 13, 5757–5777, <https://doi.org/10.5194/gmd-13-5757-2020>
7. Mech, M., M. Maahn, S. Kneifel, D. Ori, E. Orlandi, P. Kollias, V. Schemann, and S. Crewell, 2020: PAMTRA 1.0: A Passive and Active Microwave radiative TRANSfer tool for simulating radiometer and radar measure-

- ments of the cloudy atmosphere, *Geoscientific Model Development*, 13, 4229-4251, <https://doi.org/10.5194/gmd-13-4229-2020>
8. Neher, I., S. Crewell, S. Meilinger, U. Pfeifroth, and J. Trentmann, 2020: Long-term variability of solar irradiance and its complications for photovoltaic power in West Africa, *Atmospheric Chemistry and Physics*, 20, 12871-12888, <https://doi.org/10.5194/acp-20-12871-2020>
 9. Reyers, M., C. Böhm, L. Knarr, Y. Shao, and S. Crewell, 2020: Synoptic-to-regional scale analysis of rainfall in the Atacama Desert (18°S-26°S) using a long-term simulation with WRF, *Monthly Weather Review*, 148 (8), 1-51, <https://doi.org/10.1175/MWR-D-20-0038.1>
 10. Ruiz-Donoso, E., A. Ehrlich, M. Schäfer, E. Jäkel, V. Schemann, S. Crewell, M. Mech, B.S. Kulla, L.-L. Kliesch, R. Neuber, and M. Wendisch, 2020: Small-scale structure of thermodynamic phase in Arctic mixed-phase clouds observed by airborne remote sensing during a cold air outbreak and a warm air advection event, *Atmospheric Measurement Technology*, 20, 5487–5511, <https://doi.org/10.5194/acp-20-5487-2020>
 11. Frank, C. W., B. Pospichal, S. Wahl, J. D. Keller, A. Hense, and S. Crewell, 2020a: The added value of high resolution regional reanalyses for wind power applications, *Renewable Energy*, 148, 1094-1109, <https://doi.org/10.1016/j.renene.2019.09.138>.
 12. Frank, C., S. Fiedler, S. Crewell, 2020b: Balancing potential of natural variability and extremes in photovoltaic and wind energy production for European countries, *Renewable Energy*, <https://doi.org/10.1016/j.renene.2020.07.103>
 13. Henken, C., L. Dirks, S. Steinke, H. Diedrich, T. August, and S. Crewell, 2020: Assessment of Sampling Effects of Various Satellite-derived Integrated Water Vapor Datasets Using GPS Measurements in Germany as Reference, *Remote Sensing*, 12, 1170, <https://doi.org/10.3390/rd12071170>.
 14. Marke, T., Löhnert, U., Schemann, V., Schween, J. H., and S. Crewell, 2020: Detection of land-surface-induced atmospheric water vapor patterns, *Atmospheric Chemistry and Physics*, 20, 1723–1736, <https://doi.org/10.5194/acp-20-1723-2020>.
 15. Stevens, B., C. Acquistapace, M. Costa-Surós, S. Crewell, M. Jacob, U. Löhnert, S. Schnitt, et al., 2020: Large-eddy and Storm Resolving Models for Climate Prediction - The Added Value for Clouds and Precipitation, *Journal of the Meteorological Society of Japan*, 98(2), 395-435, <https://doi.org/10.2151/jmsj.2020-021>
 16. Konow, H., M. Jacob, F. Ament, S. Crewell, F. Ewald, M. Hagen, L. Hirsch, F. Jansen, M. Mech, B. Stevens, 2019: A unified data set of airborne cloud remote sensing using the HALO Microwave Package (HAMP), *Earth System Science Data*, 11, 921-934, <https://doi.org/10.5194/essd-2018-116>.
 17. Lammert, A., A. Hansen, F. Ament, S. Crewell, G. Dick, V. Grützun, H. Klein-Baltink, V. Lehmann, A. Macke, B. Pospichal, W. Schubotz, P. Seifert, E. Stamnas, and B. Stevens, 2019: A Standardized Atmospheric Measurement Data (SAMd) Archive for distributed cloud and precipitation process-oriented observations in Central Europe, *Bulletin of the American Meteorological Society*, 100(7), 1299-1314, <https://doi.org/10.1175/BAMS-D-18-0174.1> 12, 3237-3254.
 18. Mech, M., L.-L. Kliesch, A. Anhäuser, T. Rose, P. Kollias and S. Crewell, 2019: Microwave Radar/radiometer for Arctic Clouds MiRAC: first insights from the ACloud campaign, *Atmospheric Measurement Techniques*, 12, 5019–5037, <https://doi.org/10.5194/amt-12-5019-2019>.
 19. Neher, I., T. Buchmann, S. Crewell, B. Pospichal, S. Meilinger, 2019: Impact of atmospheric aerosols on solar energy production - Dust outbreak in West Africa, *Meteorologische Zeitschrift* Vol. 28 No. 4, p. 305 - 321, <https://doi.org/10.1127/metz/2019/0969>.
 20. Wendisch, M, A. Macke, A. Ehrlich, C. Lüpkes, M. Mech, D. Chechin, K. Dethloff, C. Barrientos, H. Bozem, M. Brückner, H.-C. Clemen, S. Crewell, T. Donth, R. Dupuy, C. Dusny, K. Ebell, U. Egerer, R. Engelmann, C. Engler, O. Eppers, M. Gehrmann, X. Gong, M. Gottschalk, C. Goubeyre, H. Griesche, J. Hartmann, M. Hartmann, B. Heinold, A. Herber, H. Herrmann, G. Heygster, P. Hoor, S. Jafariserajehlou, E. Jäkel, E. Järvinen, O. Jourdan, U. Kästner, S. Kecorius, E. M. Knudsen, F. Köllner, J. Kretzschmar, L. Lelli, D. Leroy, M. Maturilli, L. Mei, S. Mertes, G. Mioche, R. Neuber, M. Nicolaus, T. Nomokonova, J. Notholt, M. Palm, M. van Pinxteren, J. Quaas, P. Richter, E. Ruiz-Donoso, M. Schäfer, K. Schmieder, M. Schnaiter, J. Schneider, A. Schwarzenböck, P. Seifert, M. D. Shupe, H. Siebert, G. Spreen, J. Stapf, F. Stratmann, T. Vogl, A. Welti, H. Wex, A. Wiedensohler, M. Zanatta, and S. Zeppenfeld, 2019: The Arctic Cloud Puzzle: Using ACloud/PAS-CAL Multi-Platform Observations to Unravel the Role of Clouds and Aerosol Particles in Arctic Amplifica-

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21. Steinke, S., S. Wahl and S. Crewell, 2019: Benefit of high resolution COSMO reanalysis: The diurnal cycle of column-integrated water vapour over Germany, *Meteorologische Zeitschrift*, 28(2), 165 – 177, <https://doi.org/10.1127/metz/2019/0936>.
 22. Radovan A., S. Crewell, E.M. Knudsen and A. Rinke, 2019: Environmental conditions for polar low formation and development over the Nordic Seas: study of January cases based on the Arctic System Reanalysis, *Tellus A: Dynamic Meteorology & Oceanography*, 71, 1-16, <https://doi.org/10.1080/16000870.2019.1618131>.
 23. Rinke A., B. Segger, S. Crewell, M. Maturilli, T. Naakka, T. Nygard, T. Vihma, F. Alshawaf, G. Dick, J. Wickert and J. Kellert, 2019: Trends of vertically integrated water vapor over the Arctic during 1979-2016: Consistent moistening all over? *Journal of Climate*, 32, 6097-6116, <https://doi.org/10.1175/JCLI-D-19-0092.1>
 24. Jacob, M., F. Ament, M. Gutleben, H. Konow, M. Mech, M. Wirth, and S. Crewell, 2019: Investigating the liquid water path over the tropical Atlantic with synergistic airborne measurements, *Atmospheric Measurement Techniques*, 12, 3237-3254, <https://doi.org/10.5194/amt-12-3237-2019>.
 25. Böhm, C., O. Sourdeval, J. Mülmenstädt, J. Quaas, and S. Crewell, 2019: Cloud base height retrieval from multi-angle satellite data, *Atmospheric Measurement Techniques*, 12, 1841-1860, <https://doi.org/10.5194/amt-12-1841-2019>.
 26. Stevens, B., F. Ament, S. Bony, S. Crewell, S. Groß, L. Hirsch, B. Mayer, M. Wendisch, M. Wirth, S. Bakan, H.-M. Brück, A. Ehrlich, F. Ewald, D. Farrell, M. Forde, F. Gödde, H. Grob, M. Hagen, A. Hansen, M. Jacob, E. Jäckel, F. Jansen, C. Klepp, M. Klingebiel, H. Konow, M. Mech, G. Peters, M. Rapp, A. Wing, K. Wolf, 2019: A High-Altitude Long-Range Aircraft Configured as a Cloud Observatory: The NARVAL Expedition, *Bulletin of the American Meteorological Society*, 100 (5), 1061–1077, <https://doi.org/10.1175/BAMS-D-18-0198.1>
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 28. Aires, F., C. Prigent, M. Milz, S. Buehler, P. Eriksson, and S. Crewell, 2018: Towards more realistic hypotheses for the information content analysis of cloudy/precipitating situations - Application to a hyper-spectral instrument in the microwaves, *Quarterly Journal of the Royal Meteorological Society*, 145:1–14, <https://doi.org/10.1002/qj.3315>
 29. Marke, T., S. Crewell, V. Schemann, J. H. Schween, and M. Tuononen, 2018: Long-Term Observations and High Resolution Modeling of Mid-Latitude Nocturnal Boundary-Layer Processes Connected to Low-Level-Jets, *Journal of Applied Meteorology and Climatology*, 57(5), 1155-1170, <https://doi.org/10.1175/JAMC-D-17-0341.1>.
 30. Frank, C. W., S. Wahl, J.D. Keller, B. Pospichal, A. Hense, and S. Crewell, 2018: A novel data set for solar energy applications based on high resolution reanalysis, *Solar Energy*, 164, 12-24, <https://doi.org/10.5194/acp-18-17995-2018>.
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 32. Knudsen, E.M., B. Heinold, S. Dahlke, H. Bozem, S. Crewell, G. Heygster, D. Kunkel, M. Maturilli, M. Mech, A. Rinke, H. Schmithuesen, A. Ehrlich, A. Macke, C. Luepkes, and M. Wendisch, 2018: Synoptic development during the ALOUD/PASCAL field campaign near Svalbard in spring 2017, *Atmospheric Physics and Chemistry*, 18, 17995-18022, <https://doi.org/10.5194/acp-18-17995-2018>.

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Book contributions

- 2019 Crewell, S., M. Wendisch, and U. Loehnert, 2019: Passive Solar and Microwave Spectral Radiometers, in *Springer Handbook of Atmospheric Measurements*, Ed. T. Foken, accepted.
- Crewell, S., M. Mech, and C. Prigent, *Microwave Radiometry*, in *Springer Handbook of Atmospheric Measurements*, Ed. T. Foken, accepted.
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Miscellaneous

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- 2018 Ebell, K., S. Crewell, 2018: Bodengebundene Strahlungsschließung als Qualitätsmaß für Fernerkundungsmethoden, in PROMET: Strahlungsbilanzen, Heft 100, 75-83.
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- 2017 Schröder, M., Lockhoff, M., Shi, L., August, T., Bennartz, R., Borbas, E., Brogniez, H., Calbet, X., Crewell, S., Eikenberg, S., Fell, F., Forsythe, J., Gambacorta, A., Graw, K., Ho, S.-P., Höschel, H., Kinzel, J., Kursinski, E.R., Reale, A., Roman, J., Scott, N., Steinke, S., Sun, B., Trent, T., Walther, A., Willen, U., Yang, Q., 2017: GEWEX water vapor assessment (G-VAP). WCRP Report 16/2017; World Climate Research Programme (WCRP): Geneva, Switzerland; 216 pp.
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Invited Talks (last 5 years)

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- 2020 Crewell, S., K. Ebell, A. von Lerber, A. Radovan, B. Kulla, L.-L. Kliesch, M. Mech, A. Rinke, V. Schemann, M. Wendisch: Arctic Amplification – what can we learn from microwave measurements? Institute seminar, Institut für Physik der Atmosphäre, ETH Zürich, 27 April 2020
- Crewell, S., K. Ebell, A. von Lerber, A. Radovan, B. Kulla, L.-L. Kliesch, M. Mech, A. Rinke, V. Schemann, M. Wendisch: Arctic Amplification – what can we learn from microwave measurements? Institute seminar, Institut für Physik der Atmosphäre, DLR Oberpfaffenhofen, 8 Januar 2020
- 2019 Cloud observations in 2030, Understanding Clouds and Precipitation ([UCP2019](#)), Berlin, Germany, 25 February - 1 March 2019
- Arctic clouds - Insights from the ACLOUD campaign around Svalbard, Seminar Talk, University Centre in Svalbard/, Longyearbyen, Svalbard, 28 March 2019
- 2018 Arctic clouds - first insights from the ACLOUD campaign around Svalbard, Colloquium, University of Bremen, 12 January 2018
- The Role of Mixed-Phase Clouds in the Arctic, Seminar Talk, Colorado State University, Fort Collins, 20 April 2018
- Crewell, S., Warum erwärmt sich die Arktis am stärksten – und was haben die Wolken damit zu tun? STUMETA, University of Bonn, 10 May 2018
- Microwave radiometry for atmospheric application: a journey across the world from ground, via aircraft to satellites, Seminar talk, LERMA, Paris, 5 June 2018
- Microwave radiometry - an important component of the global observing system, ARM Summer workshop, Norman, Oklahoma, 20 July 2018
- 2017 Future Campaigns. HD(CP)2 Annual Meeting, Schneefernerhaus, 15 February 2017
- Narval Next-generation aircraft remote-sensing for validation studies, HALO Symposium, Oberpfaffenhofen, 14 March 2017
- Microwave Radiometry and Sensor Synergy, Winter school on the observation and modeling of high - latitude and Arctic clouds, Hyytiälä, Finland, March 19-25, 2017
- Planned HALO/HAMP campaigns + Polar 5/MiRAC, ISMAR Workshop, Eumetsat, Darmstadt, 10 May 2017
- Wasser und Wolkenbildung – Atmosphäre und mögliche Vorhersagen. Wissenschaft im Rathaus, Köln, 9 October 2017
- The AC3 project: why is the Arctic warming faster than the mid latitudes? Svalbard Science Conference, Oslo, 6-9 November 2017
- 2016 What can we learn from atmospheric profiling stations to better understand climate processes? Challenges of Atmospheric Research, DLR Conference on Climate Change, Cologne, 5 - 7 April 2016
- Atmospheric Remote Sensing: Challenges and Applications, 1st ECARS Summer School, Romania, 2 June 2016
- Assessment of sampling effects on precipitable water climatology, GEWEX Water Vapor Assessment

(GVAP) Workshop, Eumetsat, Darmstadt, 22 September 2016

Crewell, S.: Was ist gute Betreuung? Promovierendentag, Universität zu Köln, 2 November 2016

Arctic Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms (AC3) with a focus on clouds. MISU, University of Stockholm, Seminar talk, 29 November 2016

**DIE MATHEMATISCH-NATURWISSENSCHAFTLICHE FAKULTÄT
DER
RHEINISCHEN FRIEDRICH-WILHELMS-UNIVERSITÄT BONN**

stellt unter dem Rektorat des
Professors für Städtebau und Siedlungswesen
Dr.-Ing. Klaus Borchard

und unter dem Dekanat des
Professors für Mathematik
Dr. rer. nat. Ingo Lieb

die Lehrbefähigung von

Frau Dr. rer. nat. Susanne Crewell
geboren am 1. Januar 1964
in Hagen

für das Lehrgebiet

Meteorologie

fest, nachdem sie im ordnungsgemäßen Habilitationsverfahren durch die bisher von ihr
veröffentlichten Schriften, durch die Habilitationsschrift

**„Bodengebundene Fernerkundung der bewölkten Atmosphäre und deren Nutzung zur
Evaluierung dynamischer Atmosphärenmodelle“**

durch das Habilitationskolloquium und die wissenschaftliche Aussprache die Fähigkeit
nachgewiesen hat, das Fach in Forschung und Lehre selbständig zu vertreten.

Bonn, den 26. Juni 2002



Ingo Lieb
Prof. Dr. Ingo Lieb
Dekan

Universität Bremen

P R O M O T I O N S U R K U N D E

Der Fachbereich 1 (Physik/Elektrotechnik) verleiht

Susanne Crewell

geboren am 1. Januar 1964

in Hagen

den Grad einer

Doktorin der Naturwissenschaften (Dr. rer. nat.)

aufgrund des Kolloquiums am 10. Mai 1993 und der Dissertation mit dem Titel:

Submillimeter-Radiometrie mit einem flugzeuggetragenen Empfänger zur
Messung atmosphärischer Spurenstoffe

Die Promotion wurde mit dem Prädikat **magna cum laude** bewertet.

Bremen, den 13. Mai 1993

Der Rektor



(Prof. Dr. Jürgen Timm)



Der Fachbereichssprecher



(Prof. Dr. Stefan von Aufschnaiter)

CHRISTIAN-ALBRECHTS-UNIVERSITÄT KIEL
MATHEMATISCH-NATURWISSENSCHAFTLICHE FAKULTÄT

DIPLOM

Frau _____ Susanne Crewell _____
geboren am 01.01.1964 in Hagen (Kr. Cuxhaven) _____
hat am 29.01.1990 die Diplom-Hauptprüfung für Meteorologie gemäß der Prüfungsordnung
vom 1. Oktober 1970 mit dem Gesamturteil

- sehr gut -

an der Universität Kiel bestanden.

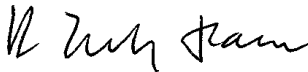
Auf Grund dieser Prüfung wird ihr hiermit der akademische Grad

DIPLOM-METEOROLOGIN


verliehen.

Kiel, den 29. Januar 1990 _____

DER VORSITZER DES PRÜFUNGS-AUSSCHUSSES
FÜR DIE DIPLOM-HAUPTPRÜFUNG
FÜR STUDIERENDE DER METEOROLOGIE


(Prof. Dr. L. Hasse)

DER DEKAN
DER MATHEMATISCH-NATURWISSENSCHAFTLICHEN FAKULTÄT
DER CHRISTIAN-ALBRECHTS-UNIVERSITÄT KIEL


(Prof. Dr. D. Adelung)

CHRISTIAN-ALBRECHTS-UNIVERSITÄT KIEL

Diplom-Hauptprüfung für Studierende der Meteorologie

PRÜFUNGSZEUGNIS

Die Studierende der Meteorologie Susanne Crewell
geboren am 01.01.1964 in Hagen (Kr. Cuxhaven)
hat sich vom 01.11.1988 bis 29.01.1990 gemäß der Prüfungsordnung vom 1. Oktober 1970
der Diplom-Hauptprüfung für Studierende der Meteorologie an der Christian-Albrechts-Universität unterzogen und die
Prüfung mit

- sehr gut -

bestanden.

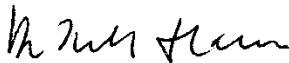
Das Thema der Diplom-Arbeit lautet:

„ Fluß latenter Wärme über dem Nordatlantik ”

Die Bewertungen der Diplom-Arbeit und der Leistungen in der mündlichen Prüfung sind untenstehend aufgeführt.

Kiel, den 29.01.1990

Der Vorsitz des Prüfungsausschusses
für Studierende der Meteorologie



(Prof. Dr. L. Hasse)

Der Dekan
der Mathematisch-Naturwissenschaftlichen Fakultät
der Christian-Albrechts-Universität zu Kiel



(Prof. Dr. D. Adelung)

Prüfungsgebiete:

Bewertungen:

Prüfer:

1. Allgemeine Meteorologie	<u>sehr gut</u>	<u>Prof. Dr. L. Hasse</u>
2. Theoretische Meteorologie	<u>gut</u>	<u>Prof. Dr. E. Ruprecht</u>
3. Angewandte- Experimentelle Theoretische Physik	<u>sehr gut</u>	<u>Prof. Dr. U.-P. Hansen</u>
4. Wahlfach Geophysik	<u>gut</u>	<u>Prof. Dr. J. Zschau</u>
5. Diplom-Arbeit	<u>sehr gut</u>	<u>Prof. Dr. L. Hasse/ Prof. Dr. E. Ruprecht</u>
6. Zusatzfach	<u> </u>	<u> </u>

Gesamturteil²⁾

- sehr gut -

1) Nichtzutreffendes streichen.
2) Zusatzfach nicht berücksichtigt.