

July 5<sup>th</sup> to 9<sup>th</sup>, 2021  
Online & On-demand

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## Welcome to the Eighth International Conference on Very High Cycle Fatigue (VHCF8)

**VHCF8 will be held online & on-demand from July 5 – 9, 2021.**

Dear Colleagues,

Thank you very much for your contribution to the Eighth International Conference on Very High Cycle Fatigue (VHCF8). In early April, 2020, we announced that VHCF8 had been postponed to July 5 – 9, 2021, due to COVID-19. We had been considering holding the event once circumstances improved; however, the pandemic remains serious worldwide. After careful discussions by the organizing committee, we have reached the decision to hold VHCF8 online.

Detailed information regarding the new, online event has been available on the website since January 11, 2021.

Each presentation will be available on-demand as a video file. This presentation method is being introduced to overcome the problem that many presentations have been allocated unusual times outside the scope of the usual fixed program. Thus, every presenter is asked to make a video of their presentation in advance. Questions and comments from the audience will be sent to the presenters, and their feedback will be available after the presentation or conference. All presentations will be available for a period, even after the conference is over.

Although abstracts have already been submitted, we earnestly ask you to re-register and re-submit your abstract for the new online VHCF8. The abstract submission site will be open from January 11 through ~~February 24~~ **February 28**, 2021.

We sincerely appreciate your active participation.

With our best regards,

VHCF8 Chairmen  
Takashi Nakamura, Hokkaido University  
Tatsuo Sakai, Ritsumeikan University

## News

April 28, 2021

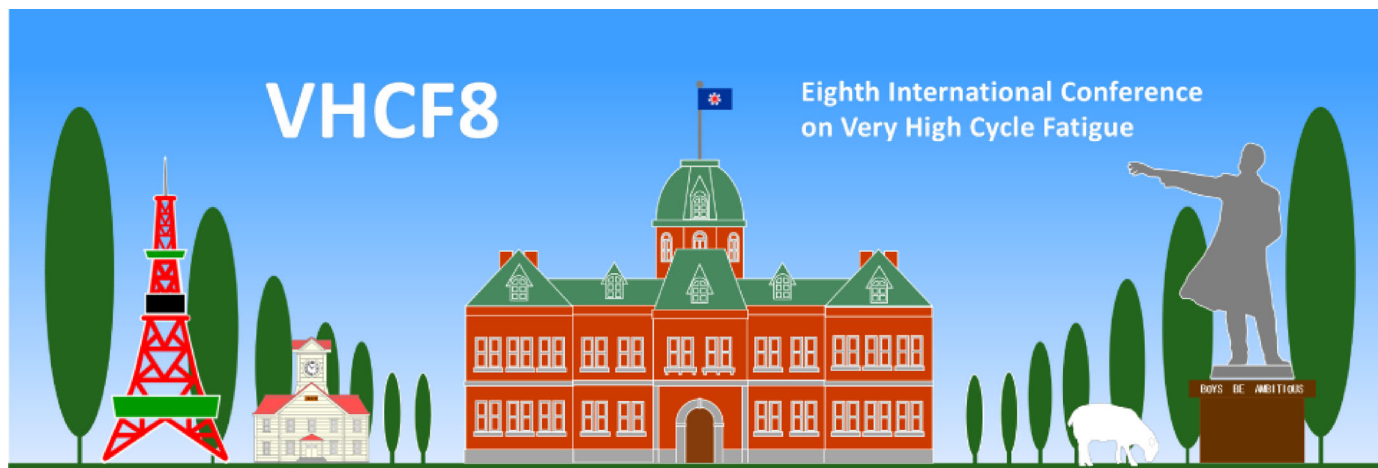
Deadline for submission of final brief papers was extended.  
(Before) ~~May 4~~ → (New deadline) **May 15**

According to the requests from those who may need some more time to

	submit the final brief paper, the organizing committee has decided to extend the deadline to the middle of May 2021.
March 19, 2021	Final brief paper submission site launched ( <a href="#">ABSTRACTS &amp; PAPERS</a> ).
March 16, 2021	Registration site launched ( <a href="#">REGISTRATION</a> ).
February 19, 2021	Deadline for abstract submission was extended. (Before) <del>February 24</del> → (New deadline) <b>February 28</b>
	According to the requests from those who may need some more time to submit the abstract, the organizing committee has decided to extend the deadline for abstract submission to the end of February 2021.
January 11, 2021	<b>New schedule and information for the conference announced.</b> Abstract submission site was relaunched ( <a href="#">ABSTRACTS &amp; PAPERS</a> ).
April 3, 2020	Conference postponement announced.
February 28, 2020	Deadline for abstract submission was extended. (Before) <del>March 4</del> → (New deadline) <b>March 20</b>
December 31, 2019	Abstract submission site launched ( <a href="#">ABSTRACTS &amp; PAPERS</a> ).
December 3, 2019	Timelines updated ( <a href="#">GENERAL INFORMATION</a> ).
May 24, 2019	Conference website launched.

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## General Information

### Timelines

January 11, 2021	Abstract submission site opens
<del>February 24, 2021</del> → February 28	<b>Deadline for abstract submission</b>
March 16, 2021	Conference registration opens
<del>May 4, 2021</del> → May 15	<b>Deadline for submission of final brief papers</b>
June 1, 2021	Deadline to submit presentation video files
	Deadline for presenter registration
June 21, 2021	Announcement of final program
July 5 – 9, 2021	VHCF8 online & on-demand

— Regarding the deadline for submission of final brief papers (April 28, 2021) —

According to the requests from those who may need some more time to submit the final brief paper, the organizing committee has decided to extend the deadline to May 15, 2021.

### Call for Papers

We invite you to submit an abstract and a final brief paper. The final brief paper will be peer-reviewed by experts, including VHCF8's organizing committee, and available for download as conference proceedings.

### Abstract Submission

Please visit the "[ABSTRACTS & PAPERS](#)" page to submit your 200-word abstract.

### Submission of Final Brief Paper

Please prepare a final brief paper and submit it via the website.

The paper should be a limited number of pages in length and submitted in A4 format. Writing guidelines are provided in a template downloadable from the "[ABSTRACTS & PAPERS](#)" page.

All final brief papers will be reviewed and included in the conference proceedings, which will be downloadable via the website.

## Submission of Presentation Video Files

Please prepare a presentation video and submit it via the website.

The guidelines for preparing the video files will be provided later.

## A Special Issue

After the conference, a special issue of VHCF8 will be published in *Fatigue & Fracture of Engineering Materials & Structures (FFEMS)*.

The authors who present their work at the conference are welcome to prepare a full paper. Submitted manuscripts will be reviewed through the regular *FFEMS* review process.

Detailed information about the special issue will be announced later.

## Young Researcher Award

To encourage young scientists and engineers working in the field of very high cycle fatigue and its related areas, the Young Researcher Award is being launched during the conference.

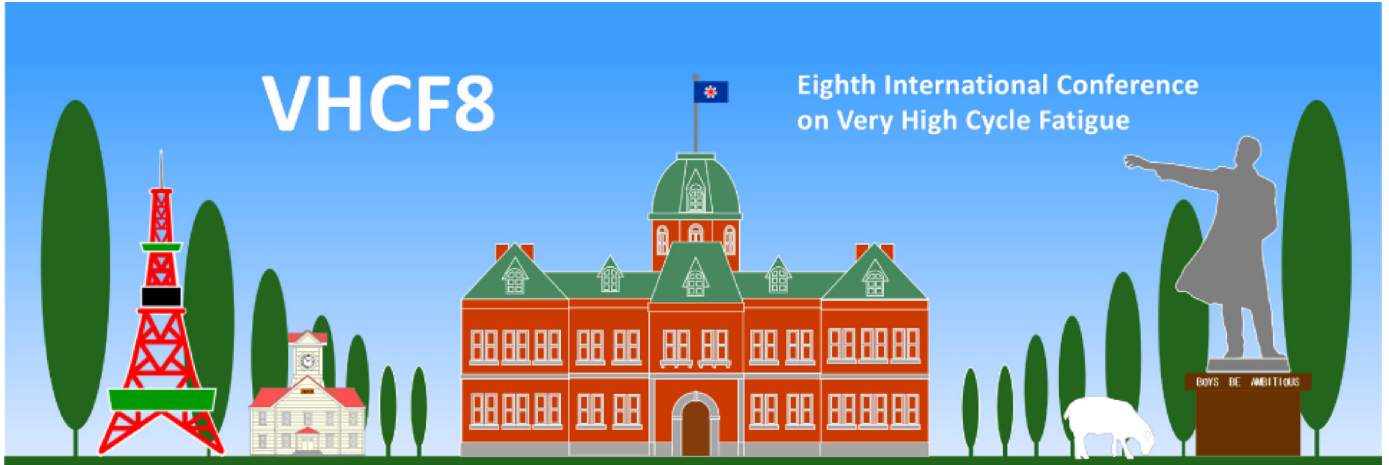
The award will be given in recognition of outstanding research work performed by students or those who have completed a terminal degree within the last ~~five~~ six years. The candidate must make a presentation at the conference as the first author of a paper. The award winner will be chosen by committee members.

## Registration

Please visit the ["REGISTRATION"](#) page.

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## About VHCF8

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### Aim & Scope

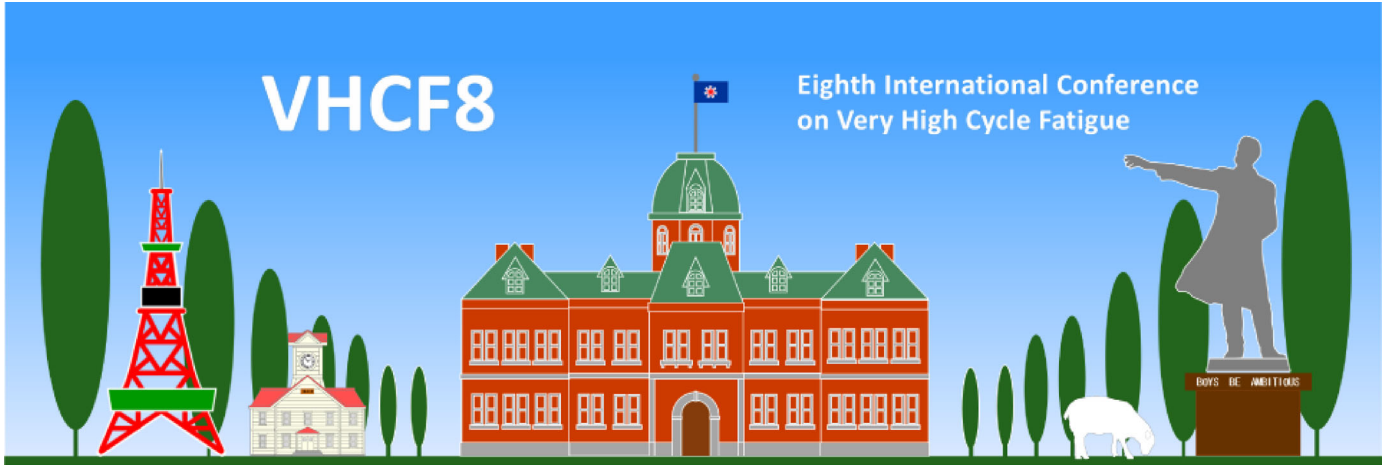
The Eighth International Conference on Very High Cycle Fatigue (VHCF8) will be held online & on-demand from July 5 – 9, 2021.

After the 1980s' epoch-making findings of internal fatigue fractures in high strength steel under numerous loading cycles, very high cycle fatigue (VHCF) has been recognized as an emerging and unprecedented issue in the field of materials strength. These days, requirements for mechanical components and structures have become increasingly demanding, as represented by new standards for automobile engines, marine engines, turbine structures, high speed railway components, etc., and a reliability against cyclic loading greater than  $10^7$  is regarded as one of the most important issues for strength design. Thus, an improved understanding of the VHCF behaviors, not only for metallic materials, but also for polymers and composites, is essential for developing reliable fatigue life prediction methods. VHCF8 will focus on this topic based on the successful series of previous conferences: VHCF1 1998, in Paris; VHCF2 2001, in Vienna; VHCF3 2004, in Kusatsu; VHCF4 2007, in Ann Arbor; VHCF5 2011, in Berlin; VHCF6 2014, in Chengdu; and VHCF7 2017, in Dresden.

VHCF8 will provide a worldwide platform for scientific communication, discussion, and activities for all those interested in both the fundamental aspects and practical applications of this issue. The conference will comprise of lectures by outstanding international scientists and other oral presentations. Suggestions for special topics are welcome. Exhibitions for testing and analyses related to VHCF studies will also be offered. The conference language is English, and a special issue of VHCF8 will be published in *Fatigue & Fracture of Engineering Materials & Structures (FFEMS)* after the conference concludes.

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## Committees

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### Chairmen

Prof. Takashi Nakamura, Hokkaido University, Sapporo, Japan  
(nakamut "at" eng.hokudai.ac.jp)

Prof. Tatsuo Sakai, Ritsumeikan University, Kusatsu, Japan  
(sakai "at" se.ritsumei.ac.jp)

### Organization

JSMS Committee on Fatigue of Materials, the Society of Materials Science, Japan

### Organizing Committee

J. Komotori  
K. Masaki  
T. Matsumura  
T. Nakamura  
H. Oguma  
T. Sakai  
Y. Shimamura  
Y. Uematsu  
A. Ueno

### Local Technical Committee

H. Akebono	Y. Nakai
M. Endo	Y. Nakamura
N. Fujimura	T. Ogawa
Y. Furuya	N. Oguma
S. Hasunuma	Y. Omoto
N. Hisamori	Y. Ono

N. Horikawa  
T. Itoh  
T. Kakiuchi  
S. Kikuchi  
M. Kubota  
T. Makino  
H. Matsunaga  
S. Miyakawa  
T. Morita  
N. Nagashima

M. Sakaguchi  
K. Sasaki  
D. Shiozawa  
H. Soyama  
A. Sugeta  
K. Takahashi  
K. Takahashi  
M. Takanashi  
D. Yonekura

## **International Advisory Committee**

J. E. Allison  
F. Balle  
T. Beck  
C. Berger  
J. Bergstrom  
G. Chai  
H. -J. Christ  
D. Eifler  
V. Favier  
M. de Freitas  
D. G. Harlow  
Y. Hong  
J. W. Jones  
H. Mayer

H. Mughrabi  
Y. Murakami  
S. H. Nahm  
D. S. Paolino  
T. Palin-Luc  
Y. S. Pyun  
A. Shanyavskiy  
H. B. Shim  
S. E. Stanzl-Tschegg  
C. M. Suh  
K. Tanaka  
Q. Y. Wang  
M. Zimmermann

## **Supporting Organizations**

JSMS: The Society of Materials Science, Japan

JSME: The Japan Society of Mechanical Engineers

DVM: German Association for Materials Research and Testing e. V.

DGM: Deutsche Gesellschaft für Materialkunde e. V., DE

ESIS: European Structural Integrity Society

FEMS: The Federation of European Materials Society

ICF: The World Academy of Structural Integrity

IGF: Gruppo Italiano Frattura, IT

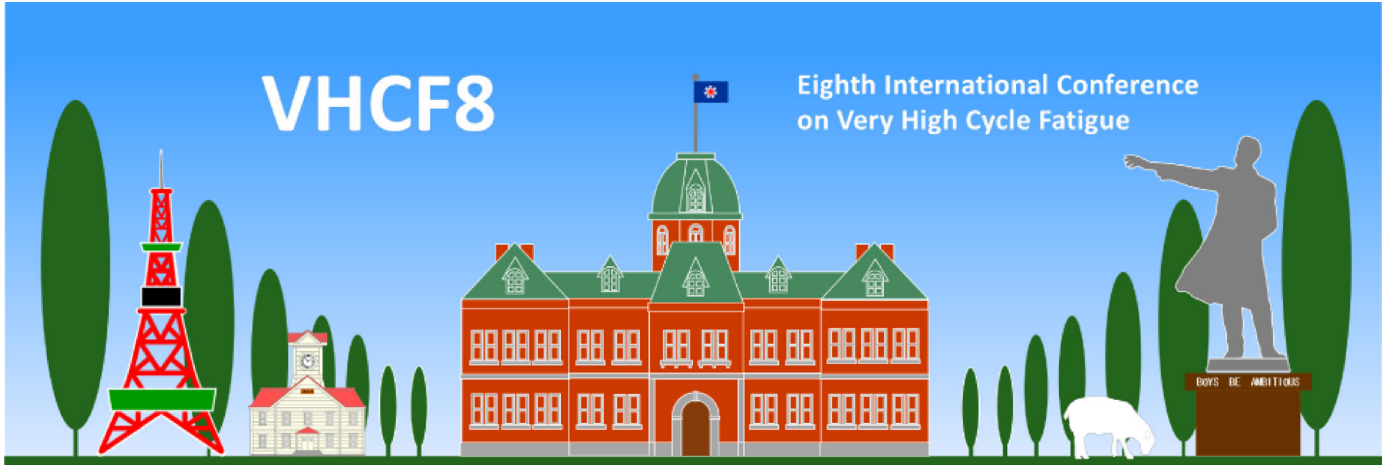
SF2M: Société Française de Métallurgie et de matériaux, FR

TMS: The Minerals, Materials Society, US

WAW: Wissenschaftlicher Arbeitskreis e. V.  
der Universitätsprofessoren der Werkstofftechnik

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## Abstracts & Papers

Please prepare an abstract and submit it by ~~February 24~~ **February 28**, 2021 according to the instructions below. All abstracts will be categorized according to their scientific topics to comprise the conference program.

Subsequently, please prepare a final brief paper. The paper should be a limited number of pages and presented in A4 format. Writing guidelines and a template will be provided shortly. All final brief papers will be reviewed and included in the conference proceedings, which will be downloadable via the conference site.

For further details, please refer to the following.

- [Abstract Preparation](#)
- [Scientific Topics](#)
- [Final Brief Paper Preparation](#)

## Abstract Preparation

The deadline for abstract submissions is ~~February 24~~ **February 28**, 2021.

The abstract template is slightly different from the one posted in 2020. Please download a new version below.

[Download Template](#)

The abstract should not exceed 200 words in length. You may include one or two figures on a single page, if necessary.

Once ready, please upload your abstract as a pdf file of no greater than 3 MB using the link below.

[Go to Submission Site](#)

\*System maintenance dates\*



Roughly 3 hours of system maintenance will be performed on the second Thursday of every month. (In February, this maintenance will be performed on Tuesday, February 16).

During the above times, the site will be temporarily unavailable.

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## Scientific Topics

VHCF8 will focus on high cycle and very high cycle fatigue properties, not only for metallic materials, but also for polymers, composites, ceramics, and advanced materials, including MEMS and additive manufactured components. The conference welcomes various research topics, from fundamental aspects to practical applications. In addition to actual fatigue behaviors, state-of-the-art technologies regarding fatigue testing machines and materials analyses, including nondestructive evaluations are also appreciated. Please refer to the following scientific topics when drafting your abstract.

### A: Fundamentals, physics, and mechanisms

- A1 Mechanisms of crack initiation
- A2 Nonpropagating cracks and growth of short and long cracks
- A3 Modeling of fatigue damage and damage accumulation

### B: Parameters

- B1 Influence of microstructure, defects, and notches
- B2 Influence of environment and temperature
- B3 Effect of mean, residual, and variable stresses
- B4 Effect of various stress conditions under torsional, multiaxial, and fretting loading
- B5 Effect of surface treatment

### C: Experimental methods and analyses

- C1 Fatigue testing machines and instrumentations
- C2 Prognosis and health monitoring
- C3 Nondestructive inspection and analyses

### D: Applications of components and structures

- D1 Statistical and probabilistic modeling and development of life estimation models
- D2 Actual structures and their components
- D3 Additive manufactured components
- D4 Composite materials and structures

### E: Material databases and their application

- E1 Material databases and application systems
  - E2 Analysis of material databases
- 

## Final Brief Paper Preparation

The deadline for submission of the final brief paper is ~~May 4~~ **May 15**.

Please download the template for the final brief paper here.

[Download Template](#)

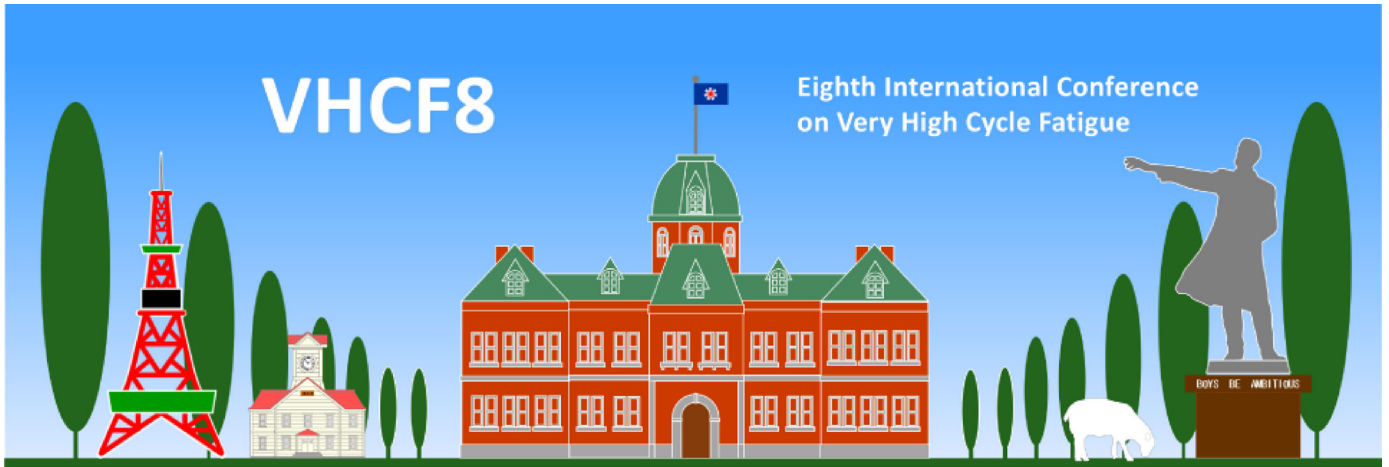
The final brief paper should be from 2 to 6 pages long. Regarding the format and the guidelines of the final brief paper, please check the template carefully.

Once ready, please upload your final brief paper as a pdf file of no greater than **10 MB** using the link below.

[Go to Submission Site](#)

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## Presentation Videos

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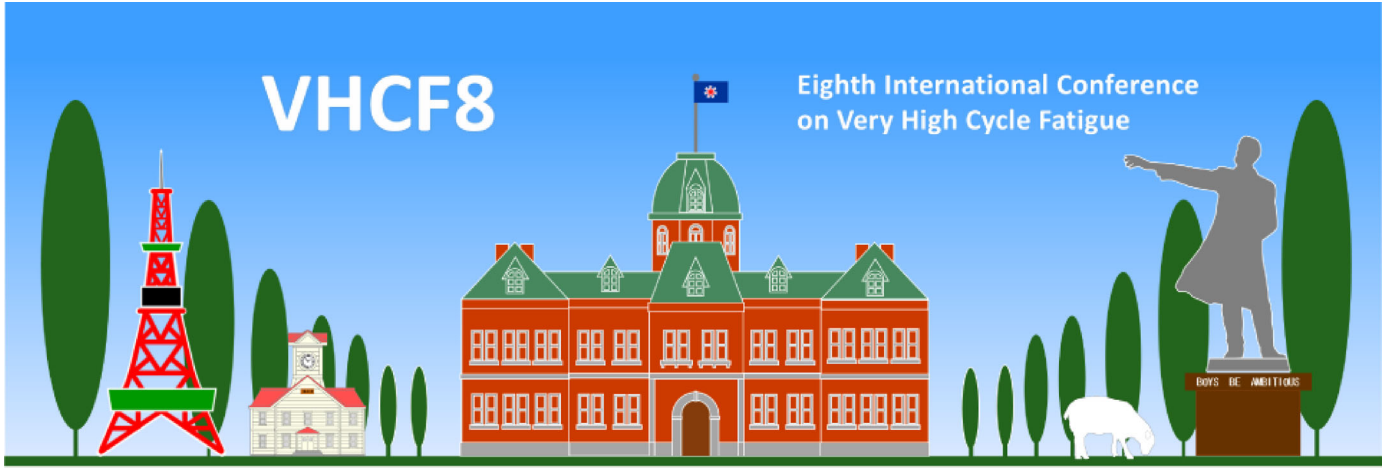
VHCF8 will be held online. During the conference, each presentation will be available on-demand via video files.

Please prepare a presentation video and submit it via the submission website.

Guidelines for preparing video files will be provided later.

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## Registration

### Registration Fees

		Registration Fee
Presenter*	Regular	40,000 JPY
	Student	20,000 JPY
Audience**	Regular	30,000 JPY
	Student	10,000 JPY

\* A "Presenter" fee will be applied to any person or student presenting at the conference. Presenter registration closes on **June 1, 2021**.

\*\* An "Audience" fee will be applied to those who attend the conference without making a presentation. Audience registration closes on the last day of the conference.

Payment is by **credit card ONLY**.

Registration will be completed after the payment is confirmed.

For information on the conference schedule, please check the "[PROGRAM](#)" page.

## How to Register

Please go to Registration Site below.

[Go to Registration Site](#)

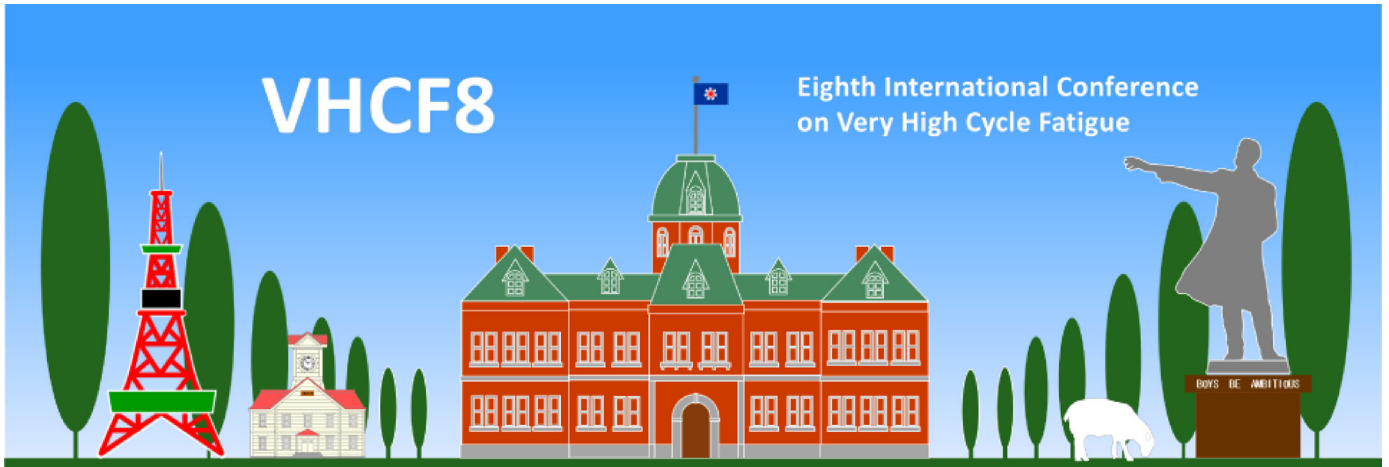
You are required to log in to the registration site of VHCF8.

If you have already created your account through the abstract submission process, please log in with the ID and the password.

If you do not have your account, please create it at the registration site.

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## Program

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### Overview

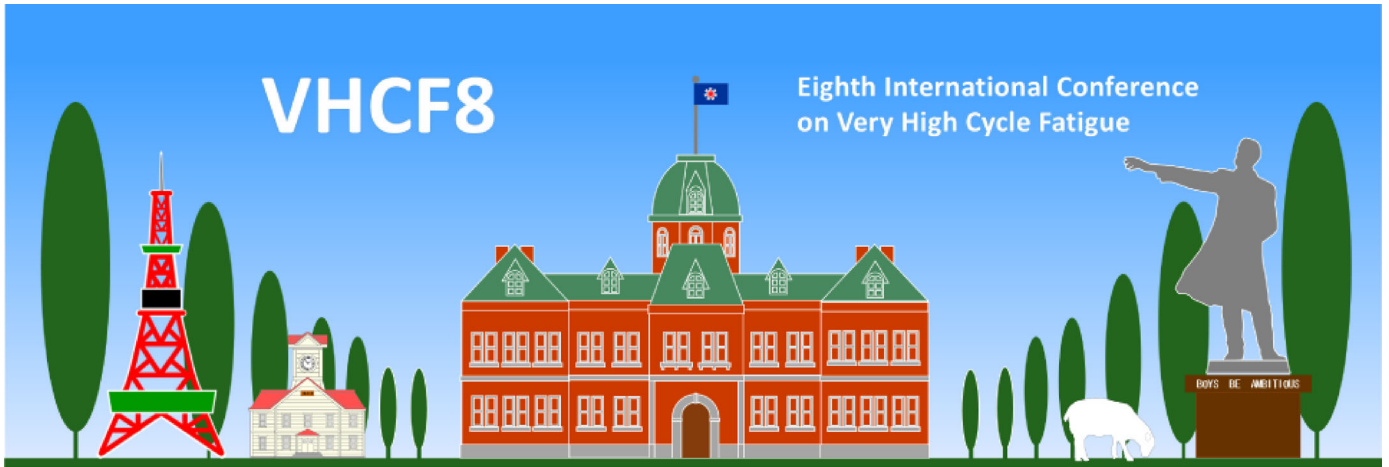
VHCF8 will be held online from July 5 – 9, 2021.

At present, we plan for the opening and closing ceremonies, as well as the plenary lectures and closing talk, to be streamed live, while regular sessions will be delivered on-demand. However, live talks on the fixed program are allocated into unusual times depending on countries or global areas. In such circumstance, the concrete plan to open the conference of VHCF8 will be informed after the program would be completed.

We will inform you of all important details regarding the schedule and programs via this website. Please check back on a regular basis, to avoid missing out on these updates.

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## Virtual Venue

### Conference Venue

The conference will be delivered from Hokkaido University, in Japan.

The virtual conference hall will open later.



## Sapporo, Hokkaido

In Sapporo, the fifth-largest city in Japan, city life and nature coexist in harmony. Sapporo is the center of Hokkaido's politics, economy, and culture, and many of its buildings tell Hokkaido's history.

When walking south from JR Sapporo Station, you will notice many historical buildings, such as the former Hokkaido Government Office Building (known as the "Red Brick Office") and the Sapporo Clock Tower. At the Sapporo Beer Museum, which traces the history of beer brewing, visitors can learn about beer while enjoying one in the beer garden. At Odori Park, which stretches 1.5 kilometers from east and west, visitors can relax comfortably on the lawn or the park benches and enjoy the trees and flowers that change with the seasons. If you go a little further, you will come to Nakajima Park, where historic buildings and cultural facilities are scattered. The city is also home to Maruyama Park, which is adjacent to Maruyama Zoo, where see many cute animals, and Moerenuma Park, which was designed by Isamu Noguchi, a prominent 20<sup>th</sup> century sculptor. Visitors can also enjoy a panoramic view of the city and the surrounding natural area from the Okurayama Viewing Point, which was used during the Sapporo Winter Olympics in 1972, and from Mt. Moiwa, located in the heart of Sapporo. On Sapporo Hitsujigaoka Observation Hill stands a famous bronze statue of Dr. William S. Clark, and visitors can enjoy "Genghis Khan," a style of barbecued lamb commonly found in Hokkaido, while looking out over the city.

In 2018, the view of Sapporo at night was chosen as one of Japan's new top three nighttime views, along with Nagasaki and Kitakyushu. Visitors can enjoy various wonderful night views from the observation platforms of Mt. Moiwa, Mt. Okura, the Sapporo TV Tower, and the JR Tower building.

For more information please visit the following sites.

- [Welcome to SAPPORO](#)
- [SAPPORO NIGHT VIEW GUIDE](#)





Sapporo Station & JR Tower



Red Brick Office



Sapporo Clock Tower



Sapporo Beer Museum



Odori Park & TV Tower



Maruyama Zoo



Okurayama View Point



Night View from Mt. Moiwa

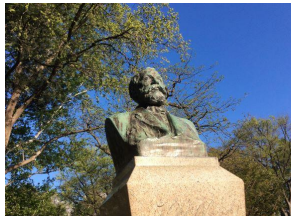


Hitsujigaoka Observation Hill

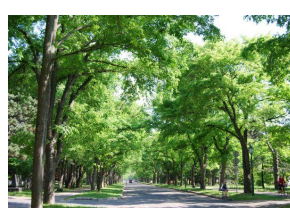
## Hokkaido University

Hokkaido University is a leading comprehensive university that places an emphasis on its graduate schools. The university was founded in 1876 as the Sapporo Agricultural College and was the first modern academic institute in Japan. The Sapporo campus, located near JR Sapporo Station, has a sizable site, extending approximately two kilometers from north to south and one kilometer from east to west. The campus is largely open to the public, and visitors can enjoy the beautiful transitions between the four seasons on the lush main street and central lawn.

For more information, please visit [Hokkaido University's website](#).



W. Clark



Main Street

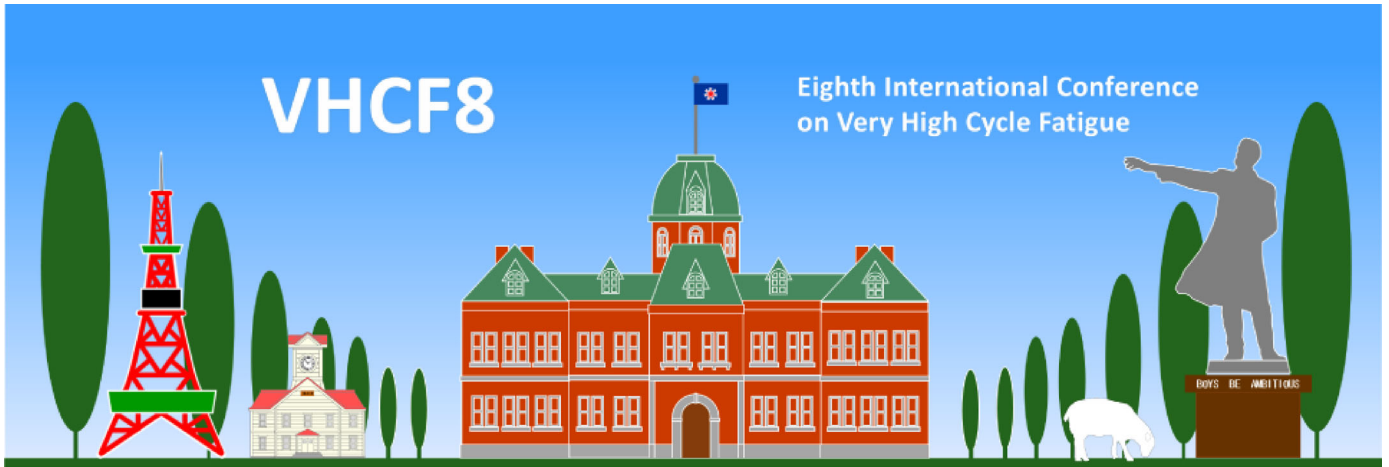


Poplar Row Trees



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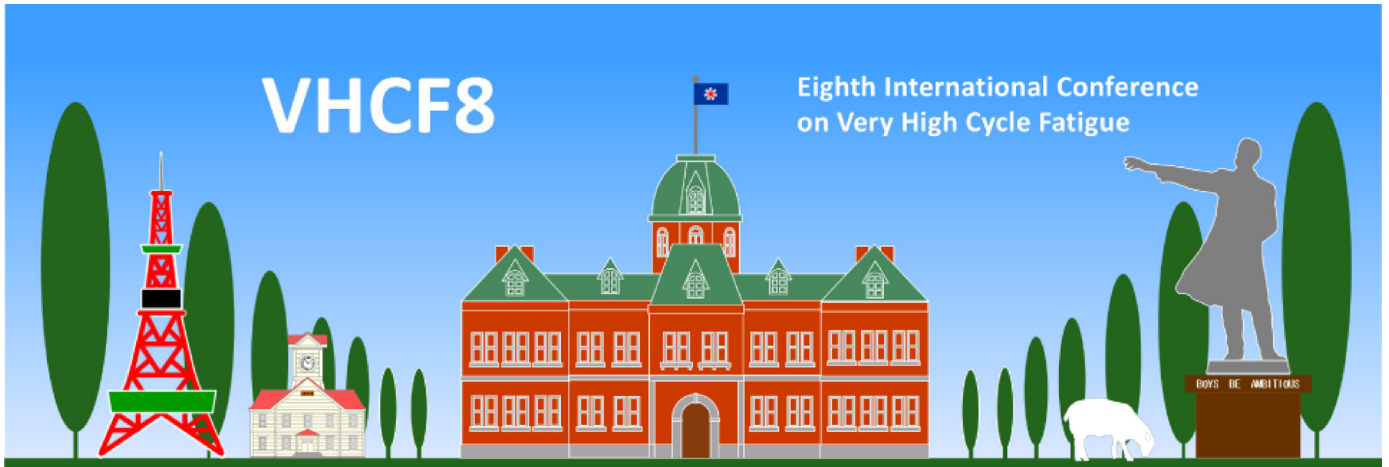
## Online Exhibition

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**Coming Soon**

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## Contact

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If you have any questions, please send a message to the address below.

### Conference Secretariat

Division of Mechanical and Aerospace Engineering  
Faculty of Engineering, Hokkaido University  
Kita 13, Nishi 8, Kita-ku, Sapporo 060-8628, Japan

E-mail: [secretariat@vhcf8.jp](mailto:secretariat@vhcf8.jp)