

Heidelberg Laureate Forum: — A Unique Experience —

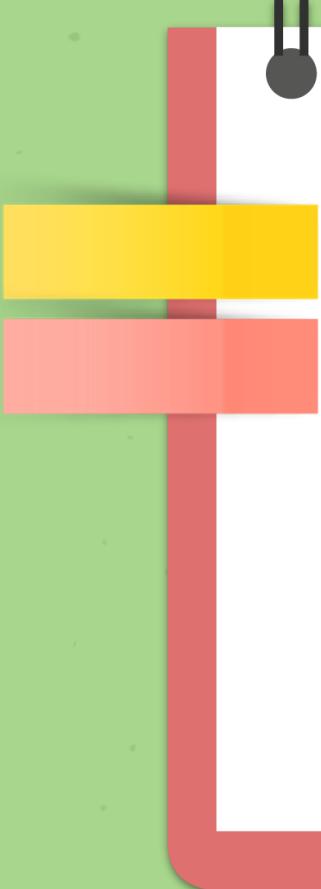
Hoang D. LE

Postdoctoral Researcher
The University of Aizu

Winter Camp, Mar. 9th, 2023

Outline

- 1) Overview of Heidelberg Laureate Forum (HLF)**
- 2) 9-th Heidelberg Laureate Forum**
- 3) Activities at 9-th HLF**
- 4) Comments/Acknowledgements**



01

Overview of HLF

01

Heidelberg Laureate Forum (HLF)

- The HLF is a networking event that brings together **excellent young Researchers** and **prominent Laureates** in the fields of mathematics and computer science
- Purpose: To foster interactions across generations and disciplines through scientific and social activities
- Held annually in September in Heidelberg city, Germany
 - 1st HLF in 2013 and 9th HLF in 2022

01

Participants at HLF

- 200 excellent young researchers in mathematics and computer science are carefully selected for HLF
- Laureates are the recipients of the most prestigious awards:
 - 1) Mathematics
 - Abel Prize
 - Fields Medal
 - IMU Abacus Medal (known before 2022 Nevanlinna Prize)
 - 2) Computer Science
 - ACM A.M. Turing Award
 - ACM Prize in Computing (After the 4th HLF in 2016)

01

Mathematics:

1) Abel Prize:

- for outstanding scientific work in the field of mathematics
- awarded annually by the King of Norway



2) Fields Medal:

- mathematicians under 40 years of age
- awarded every 4-year by International Mathematical Union (IMU)



3) IMU Abacus Medal:

- for outstanding mathematical contributions to computer science
- awarded every 4-year for researchers under the age of 40 by IMU



Computer Science:

1) ACM A.M. Turing Award:

- the highest distinction in computer science
- awarded by Association for Computing Machinery (ACM)



2) ACM Prize in Computing:

- recognizes an early to mid-career fundamental innovative contribution in computing
- awarded by ACM since 2007



01

Activities at HLF

- Participants spend a full week for **scientific** and **social** activities
 - **Scientific program:** Laureate lectures, panel discussions, informal discussion with Laureates, poster flash/session, science slam, and workshops
 - **Social program:** Speed networking, city tour, boat trip, Heidelberg Castle tour, parties
- Activities at HLF are changed year-by-year



02

9th Heidelberg Laureate Forum

02

9-th HLF



Time : From Sept. 18 ~ Sept. 23, 2022

Venue : Heidelberg University

- New Auditorium, New University Building
- Heidelberg city, Germany

Participants : 29 Laureates, 200 Selected Young Researchers + Guests, Journalists



New
University



Auditorium



02

Heidelberg City

One of the
oldest cities
in south-west
Germany



A beautiful city, which was designated a "City of Literature" by the UNESCO Creative Cities Network.

02

Heidelberg University

It is the Germany's oldest university (1386) - 636 years ago

There are 33 Nobel Prize Winners until 2022



The main building of University Library, built in 1905



The new University was officially opened in 1931



Mathematics [6]:

- 1) STEPHEN SMALE (Fields Medal-1966)
- 2) GERD FALTINGS (Fields Medal-1986)
- 3) SHIGEFUMI MORI (Fields Medal-1990)
- 4) BÀO CHÂU NGÔ (Fields Medal-2010)
- 5) ENDRE SZEMERÉDI (Abel Prize-2012)
- 6) AVI WIGDERSON (Nevanlinna Prize-1994
and Abel Prize-2021)

Computer Science [23]:

I. ACM Prize in Computing

- 1) ERIC A. BREWER (2009)
- 2) SANJEEV ARORA (2011)
- 3) ALEXEI EFROS (2016)
- 4) SHWETAK N. PATEL (2018)
- 5) PIETER ABBEEL (2021) - *Remote*

Computer Science:**II. ACM A.M. Turing Award**

- 6) STEPHEN ARTHUR COOK (1982)
- 7) RICHARD MANNING KARP (1985)
- 8) IVAN SUTHERLAND (1988)
- 9) RICHARD EDWIN STEARNS (1993)
- 10) RAJ REDDY (1994)
- 11) MANUEL BLUM (1995)
- 12) ADI SHAMIR (2002)
- 13) VINTON GRAY CERF (2004)
- 14) JOSEPH SIFAKIS (2007)

15) LESLIE LAMPORT (2013)

16) WHITFIELD DIFFIE (2015)

17) MARTIN HELLMAN (2015)

18) YOSHUA BENGIO (2018) - *Remote*

19) GEOFFREY E. HINTON (2018)

20) YANN LECUN (2018)

21) JEFFREY DAVID ULLMAN (2020)

22) JACK J. DONGARRA (2021)

III. Nevanlinna Prize

23) ROBERT ENDRE TARJAN (1982) and ACM A.M. Turing Award -1986



03

Activities at HLF

03

9TH HEIDELBERG LAUREATE FORUM SEPTEMBER 18–23, 2022

PROGRAM OVERVIEW

(schedule subject to change)

- 6 days

- Almost full day of activities

- Scientific and social activities

- Covid test for every day

CEST (UTC+2)	SUNDAY September 18	MONDAY September 19	TUESDAY September 20	WEDNESDAY September 21	THURSDAY September 22	FRIDAY September 23	CEST (UTC+2)
08:00							08:00
08:30		Warm Up (08:15–08:45)	Warm Up (08:15–08:45)		Transfer	Warm Up (08:15–08:45)	Transfer
09:00		Lecture: Tarjan (09:00–09:45)			Panel Discussion: Science Communication (09:00–10:30)	Lecture: Patel (09:00–10:00)	09:00
09:30		Laureate Discussion (09:45–10:30)		Laureates: Visits to Local Schools	Young Researchers: Visits to Local Institutions (09:00–11:30)	Panel Discussion: Post-Quantum Cryptography (11:00–12:30)	09:30
10:00		Coffee Break (10:30–11:30)	Coffee Break (10:30–11:30)	Young Researchers: Visits to Local Institutions (09:00–11:30)	Coffee Break (10:30–11:30)	Coffee Break (10:00–11:00)	10:00
10:30				Transfer	Lecture: Dongarra (11:30–12:15)	Panel Discussion: Post-Quantum Cryptography (11:00–12:30)	11:00
11:00							11:30
11:30		Lindau Lecture: Genzel (11:30–12:15)	Lecture: Wigderson (11:30–12:15)				12:00
12:00		I AM A.I. Talk (12:15–12:30)					12:30
12:30				Lunch Break (12:00–13:30)			13:00
13:00		Lunch Break (12:30–14:00)	Lunch Break (12:15–14:00)			Lunch Break (12:15–14:00)	13:30
13:30						Lunch Break (12:30–14:00)	14:00
14:00		Speed Networking (14:00–14:30)	Hot Topic: Deep Learning – Applications and Implications (14:00–17:00)	Boarding (13:30–14:00)	Small Group Interaction (14:00–14:45)	Scientific Interaction (14:00–16:00)	14:30
14:30		Coffee Break (14:30–15:00)		Boat Trip (14:00–18:00)	Coffee Break (14:45–15:30)	Transfer	15:00
15:00		Opening Ceremony (15:00–17:00)	Poster Flash (15:00–16:00)	Boat Party (18:00–20:00)	Workshops (15:30–17:00)	Heidelberg Castle Tour (17:00–18:00)	15:30
15:30			Poster Session (16:00–17:00)				16:00
16:00							16:30
16:30							17:00
17:00			Heidelberg City Tour (17:00–18:00)	Transfer			17:30
17:30							18:00
18:00							18:30
18:30		Reception 'Marstall Cafeteria' (from 17:00)					19:00
19:00							19:30
19:30							20:00
20:00							20:30
20:30			Welcome Dinner 'Halle02' (from 18:30)				21:00
21:00							21:30
21:30							22:00
22:00							22:30
22:30				Transfer		Transfer	

03

Covid Test

The first
thing that we
must do every
morning



Entry to the event would not be possible without proof of a negative antigen test

Your test result

Patient: Doan Hoang Le
Result: **Negative**

The result would be sent via email. We prayed for that every day !!!

03

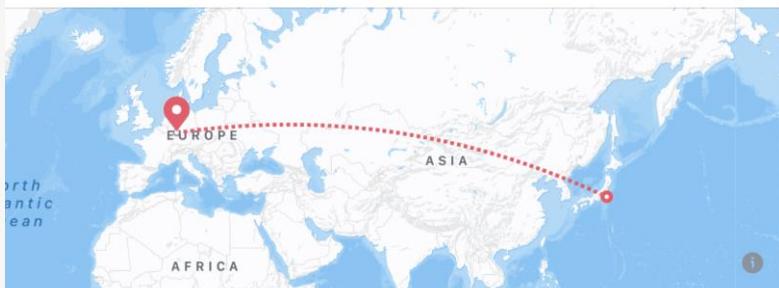
1日目 (HLF 前日)



Hoang Le is traveling to Frankfurt, Germany from Tokyo-Narita International Airport.

September 17 · Narita, Chiba · 0

...



CITY

Frankfurt, Germany

Thành Phát and 4 other friends have been here

- I took a flight to Frankfurt and then moved to Heidelberg city at midnight
- ~15 hours from Narita to Frankfurt

03

Arrived at Heidelberg city at midnight



My hotel (~1.5 km from the event)



“went to bed to avoid jet lag (時差ぼけ)”

03

2日目(HLF 初日)



CEST (UTC+2)	SUNDAY September 18
08:00	
08:30	
09:00	
09:30	
10:00	
10:30	
11:00	
11:30	
12:00	
12:30	
13:00	
13:30	
14:00	
14:30	
15:00	
15:30	
16:00	Opening Ceremony (15:00-17:00)
16:30	
17:00	
17:30	
18:00	
18:30	
19:00	
19:30	
20:00	
20:30	
21:00	
21:30	
22:00	
22:30	Reception "Marstall Cafeteria" (from 17:00)

Activities

Morning:

- Registration

Afternoon:

- Opening ceremony

Evening:

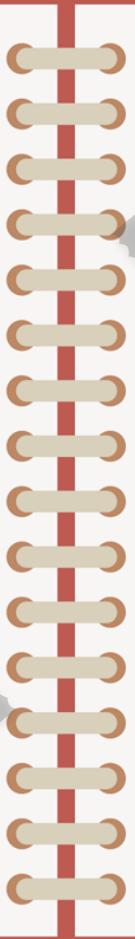
- Reception Party

03

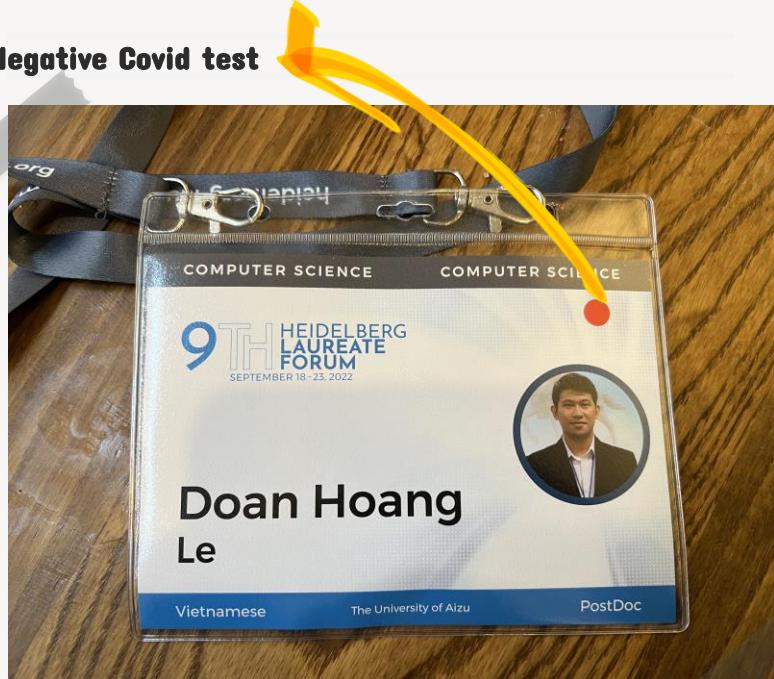
Registration



Many things from the organizers.
That's amazing!!!



Negative Covid test



Okay. I was ready for the event!!!

03

Opening Ceremony



We were ready for the opening ceremony.
Very exciting!!!!



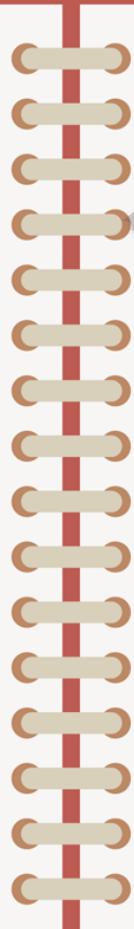
Two MCs were alumni of HLF

03

Opening Ceremony



Then, welcome Laureates!!!



The opening ceremony was started by
Mrs. Beate Spiegel, chairperson of HLF

03

After Opening Ceremony

Me after the opening ceremony



Very excited!!!

Waiting for the next events

Wow!!! I was over the moon when I met Professor Whitfield Diffie, one of the pioneers of public-key cryptography with the well-known "Diffie-Hellman key exchange"



03

Reception Party



buffet
party



Western
Food



Professor Ivan Edward Sutherland, a pioneer
of computer graphics (84 years old)

03

3日目 (HLF2日目)



MONDAY September 19	
Warm Up	(08:15-08:45)
Lecture: Tarjan	(09:00-09:45)
Laureate Discussion	(09:45-10:30)
Coffee Break	(10:30-11:30)
Lindau Lecture: Genzel	(11:30-12:15)
I AM A.I. Talk	(12:15-12:30)
Lunch Break	(12:30-14:00)
Speed Networking	(14:00-14:30)
Coffee Break	(14:30-15:00)
Poster Flash	(15:00-16:00)
Poster Session	(16:00-17:00)
Heidelberg City Tour	(17:00-18:00)
Transfer	
Welcome Dinner "Halle02"	(from 18:30)
Transfer	

Activities

Morning:

- Laureate lecture
- Laureate discussion
- Lindau lecture
- I AM A.I. talk

Afternoon:

- Speed networking
- Poster flash/session
- Heidelberg City tour

Evening:

- Welcome party

03

Laureate Lecture



“Finding Strong Components Using Depth-First Search” by Prof. ROBERT ENDRE TARJAN

Panel Discussion



“The Intersection of mathematics and computer science with strong implications for society at large”

03

Coffee Break



Make friends by talking with other young researchers



Or talk with laureates



Prof. Vint Cerf, an American Internet pioneer and is recognized as one of "the fathers of the Internet", sharing this title with TCP/IP co-developer Bob Kahn

03

Lindau lecture



"Do Massive Black Hole Exist - A 40-Year Journey" by Prof. Reinhard Genzel



Prof. Reinhard Genzel was awarded the 2020 Nobel Prize in Physics "for the discovery of a supermassive compact object at the center of our galaxy"

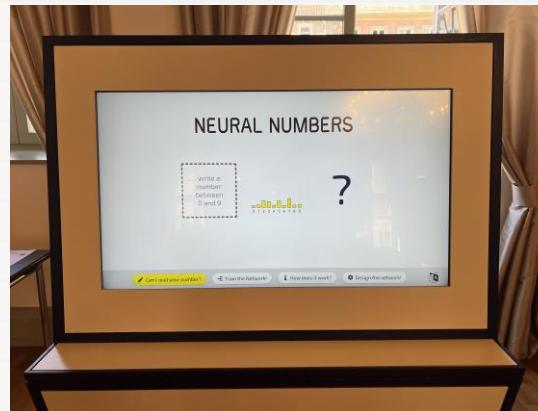
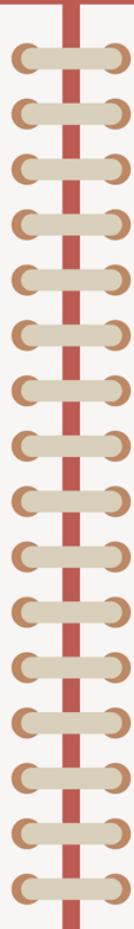
03

I AM A.I. TALK



HLF showcases an exhibition on "Artificial Intelligence Explained" by Dr. Antonia Mey

Some demos on AI



03

Lunch Break



Lunch time (buffet) at University campus

Speed Networking



© 2021 Goethe University Frankfurt Foundation

Have 1 minute to know about the opposite person, “*fastest way to get to know as many people as possible*”

03

Poster Flash



30 pre-selected young researchers presented their researches in rapid two-minute presentations

Poster Session



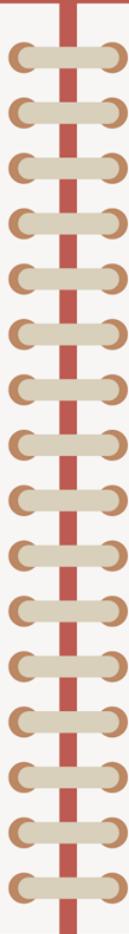
Then, we moved to the poster session for the detailed discussions

03

City Tour

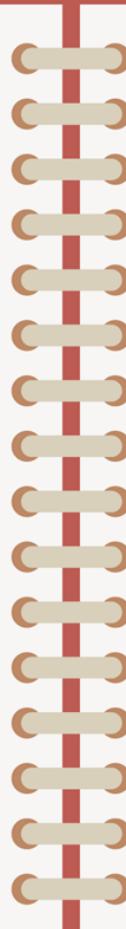
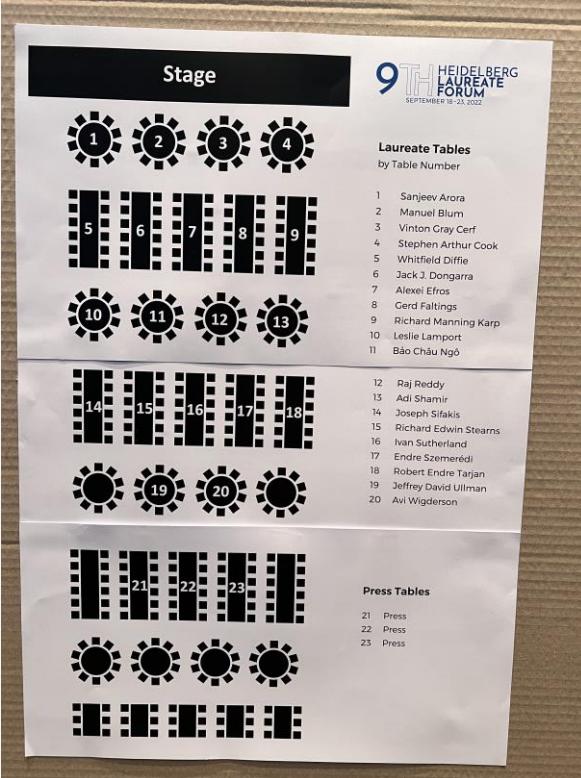


“Heidelberg city tour”



03

Welcome Party



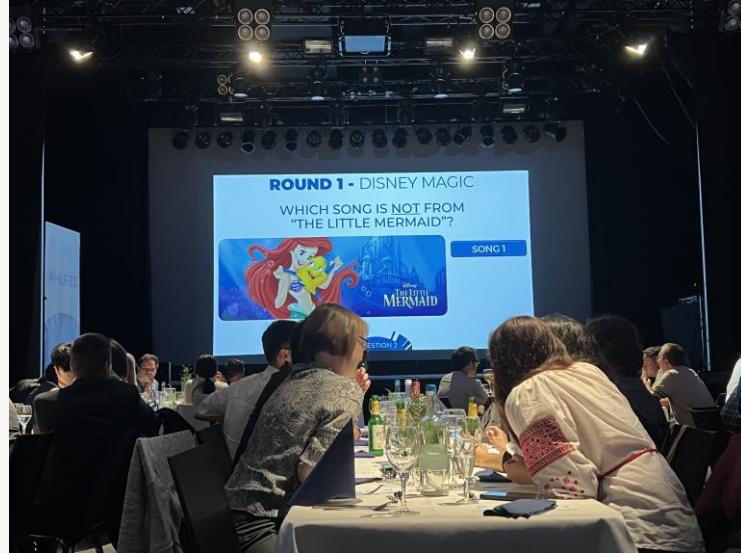
Each table has a laureate, and young researchers can select the laureate tables

03

Welcome Party



Food



Games

03

4日目 (HLF3 日目)



TUESDAY
September 20

Warm Up
(08:15-08:45)

Panel Discussion: M&CS
(09:00-10:30)

Coffee Break
(10:30-11:30)

Lecture: Wigderson
(11:30-12:15)

Lunch Break
(12:15-14:00)

Hot Topic: Deep Learning –
Applications and Implications
(14:00-17:00)

Transfer

Wine & Dine
"Speyer Museum
of Technology"
(from 18:00)

Activities

Morning:

- Panel discussion
- Laureate lecture

Afternoon:

- Hot topic

Evening:

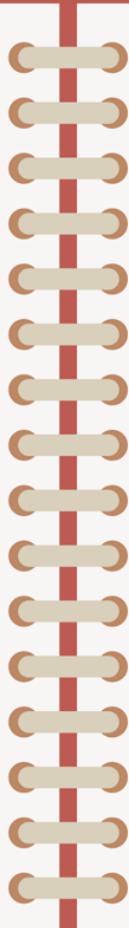
- Wine and dine party

03

Panel Discussion



“Future Challenges in Mathematics and Computer Science”



**Prof. Shigefumi Mori, Fields Medal 1990,
Kyoto University**
*“You should see the beauty in every
problem, then you can make it better.”*

03

Coffee Break



Talked with Prof. Shigefumi Mori during the coffee break.

"If you could not solve the problem, let it be there. Then, come back and try it again. Never give up."

Laureate Lecture



"Imitation games" by Prof. Avi Wigderson

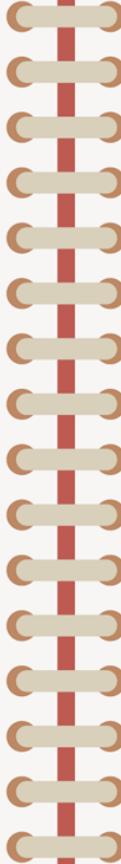
03

Lunch Break



Prof. ADI SHAMIR, a co-inventor of the Rivest-Shamir-Adleman (RSA) algorithm for network security

Hot Topic



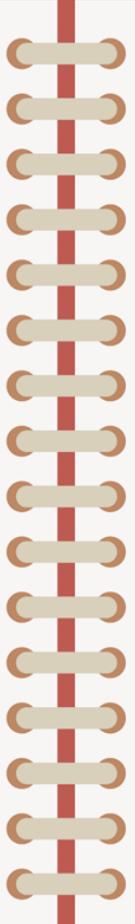
“Deep Learning—Applications and Implications”

03

Wine and Dine



We had the party at Speyer Museum of Technology



Each table has a laureate, and young researchers can select the laureate tables

03

5日目 (HLF4 日目)



	WEDNESDAY September 21
	Transfer
	Laureates: Visits to Local Schools
	Young Researchers: Visits to Local Institutions (09:00–11:30)
	Transfer
	Lunch Break (12:00–13:30)
	Boarding (13:30–14:00)
	Boat Trip (14:00–18:00)
	Boat Party (18:00–20:00)
	Laureates: Closed Meeting & Dinner
	Young Researchers: Free Evening

Activities

Morning:

- Visit local institutions

Afternoon:

- Boat trip

Evening:

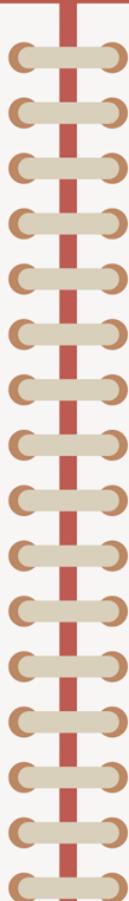
- Free Evening

03

Visit local institution



I selected “Max Planck Institute for Astronomy” to visit



We attended the lecture on “Astronomy”

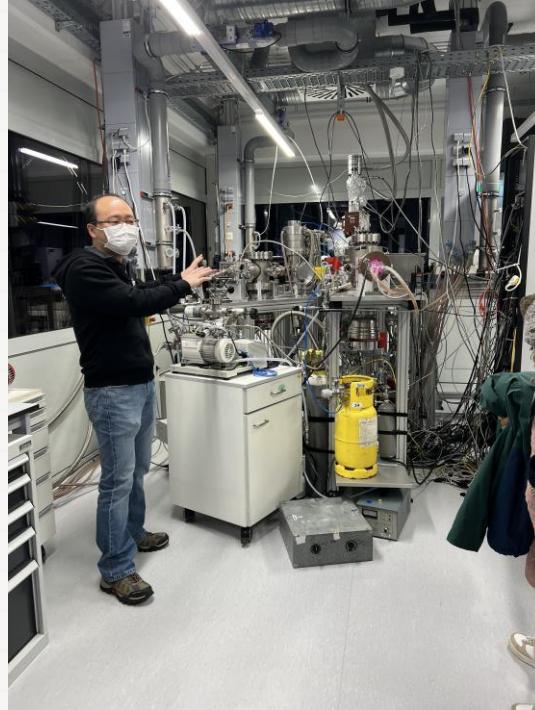
03

Visit local institution



We watched simulations of the planets through
the curved screen mounted on the ceiling

We visited laboratories in the institute



03

Boat Trip



Boat trip activity



We can make friends

03

Free Dinner



Chinese Restaurant



Have the dinner together and discuss about the “Alumni project” ~ 5000 EUR



We plan to organize an event (summer school) to promote the study of mathematics and computer science for students in Vietnam

03

6日目 (HLF5日目)



	THURSDAY September 22
	Warm Up (08:15-08:45)
	Panel Discussion: Science Communication (09:00-10:30)
	Coffee Break (10:30-11:30)
	Lecture: Dongarra (11:30-12:15)
	Lunch Break (12:15-14:00)
	Small Group Interaction (14:00-14:45)
	Coffee Break (14:45-15:30)
	Workshops (15:30-17:00)
	Transfer
	Bavarian Evening "Weldegarten" (from 18:00)

Activities

Morning:

- Panel discussion
- Laureate lecture

Afternoon:

- Group Interaction
- Workshops

Evening:

- Bavarian Evening

03

Panel Discussion



"Communications in Crisis?"
Exploring new methods of science
communication for mathematics and
computer science and how to rebuild trust
with the public

Coffee Break



Prof. Ngo Bao Chau, Fields Medal 2010

"I was about to quit my PhD because I did not find my passion in my research direction."

03

Laureate Lecture



©2022 Heidelberg Laureate Forum Foundation

"A not so simple matter of software" by
Prof. Jack J. Dongarra (ACM A.M. Turing
Award 2021)

Small Group Discussion



© 2022 Heidelberg Laureate Forum Foundation

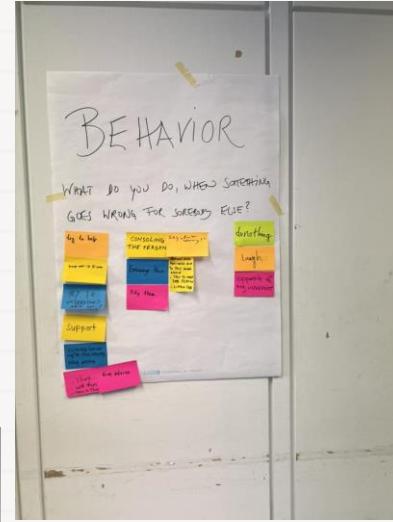
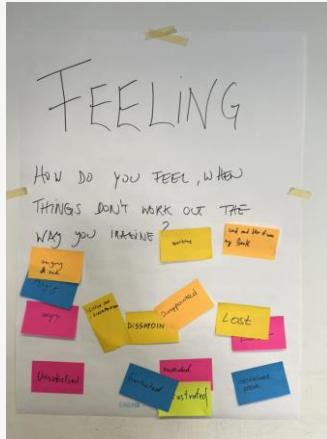
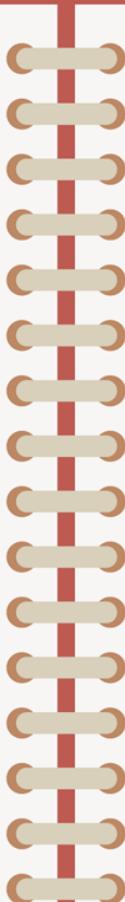
A small group discussion, where young
researchers can ask questions to a Laureate

03

Workshop



Besides the inspired talks/lectures by Laureates, we also gathered in a small group and enjoyed an exciting workshop on "*Failing Your Way to Success*" by Elena Lichtenhaler



Don't be afraid of failure. Regret is the thing we should fear most.

03

Bavarian Evening



A bavarian Evening with folklore [民間伝承] and dancing



© 2022 Heidelberg Laureate Forum Foundation

03

Bavarian Evening



Enjoy the food



Make friends

03

7日目 (HLF6日目)



	FRIDAY September 23
	Transfer
	Lecture: Patel (09:00-10:00)
	Coffee Break (10:00-11:00)
	Panel Discussion: Post-Quantum Cryptography (11:00-12:30)
	Lunch Break (12:30-14:00)
	Scientific Interaction (14:00-16:00)
	Transfer
	Heidelberg Castle Tour (17:00-18:00)
	Farewell Dinner "Heidelberg Castle" (from 18:00)

Activities

Morning:

- Laureate lecture
- Panel discussion

Afternoon:

- Scientific interaction
- Castle tour

Evening:

- Farewell Dinner

03

Laureate Lecture



“Computing for Social Good” by Prof. Shwetak N. Patel [ACM Prize in Computing 2018]

Panel Discussion



The panel discussion started by a short lecture “Cryptography” by Prof. Whitfield Diffie

03

Panel Discussion



Then, we moved to “Post-Quantum Cryptography” Why is it important now?

Lunch Break



Western Food

03

Scientific Interaction



Experts and alumni from academia and business provide insights into their careers

Two different rooms for (i) academia and (ii) business



Young researchers have the opportunity to engage directly with the experts and alumni and ask their questions

03

Castle tour



Heidelberg Castle Tour

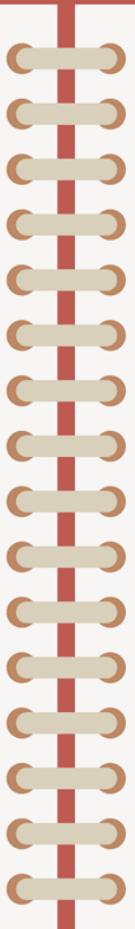


03

Farewell Dinner



A photo with Prof. Mori and other young researchers



Prof. Raj Reddy, a winner of ACM Turing Award 1994, is one of the early pioneers of artificial intelligence

03

Farewell Dinner



Last evening
at the Heidelberg Castle



Closing speech
by Prof. Anna Wienhard, the
Scientific Chairperson

03

8日目 (帰国日)



- It's time for back Japan after a full week of many activities, *from early morning until night*
- Many memories and inspiration
- On the other side, I was tired, missed Japan, and a lot of things had to do
- ~13 hours from Frankfurt to Narita

<img alt="A decorative border consisting of a red vertical bar on the left

C1 It's a special event in my life

- My first oversea conference after Covid pandemic
- A meaningful event for young researchers to define their career
- Very professional and thoughtful organization
- Many "Big name" (Laureates) gather in an event
- Organized in a beautiful city and the Heidelberg University with many Nobel prizes

C2

I am inspired and motivated by Laureates

- I was excited about lectures by laureates, even though sometime I could not understand
- I love the panel discussion where I can hear different opinions/aspects from different laureates
- E.g., a question for Prof. Vint cerf: "*You created the Internet, so why you made it unsecured?*"
- I learned a lot from talking with laureates.
"He's happy when he shares his story with students"
said by Prof. Mori's wife

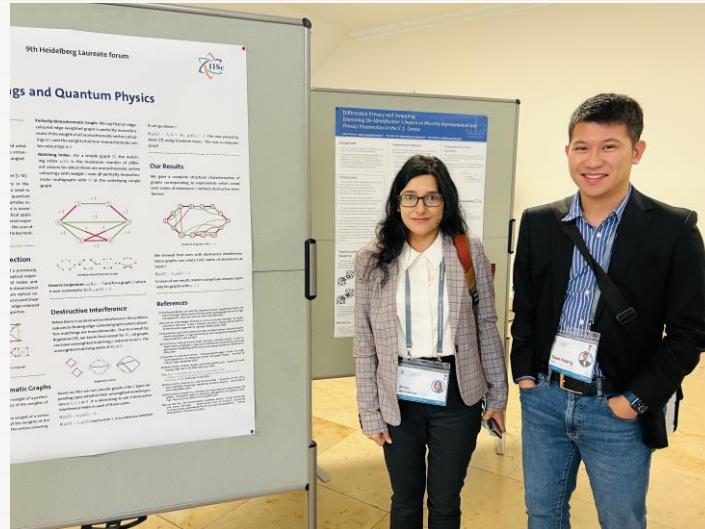
04

Comments/Feeling

C3

I can learn many things from other young researchers

- They are from different countries, with different research directions
- They put a lot of effort into their way to being successful
- One female PhD student tried to solve a mathematical problem that she stuck during the opening ceremony
- My first friend at HLF, from Philippine, "My professor asked me to go out as I am too hard-working"



- An Azerbaijani mathematician: "*I have a dream of becoming a Professor in Germany. I tried my best, studied PhD without scholarships, spent time learning German and part-time job.*" Finally, she got an offer.

04

Comments/Feeling

C4

I have many new friends

C5

Why don't we have a big dream of becoming laureates in the future?



Let the answer to this question for future



04

Acknowledgements

Album HLF-Germany 2022



Hoang Le
September 19 ·

[Opening ceremony of HLF22]
It's a great honor for me to participate in the Heidelberg Laureate Forum 2022, where selected young researchers in mathematics and computer science from around the globe interact with recipients of the most prestigious awards in mathematics and computer science (e.g., Abel Prize, ACM A.M. Turing Award, and Fields Medal).
I am deeply grateful for the travel grant support from both the Japan Datacom foundation and HLF. Special thanks to 会津大学 The University of Aizu and Prof. Anh Pham for constant support with a good research environment, so that I could be qualified to attend the event.

“My post on Facebook”

I am deeply grateful for the support from Prof. Pham and Dr. Thanh

**THANK YOU FOR YOUR
LISTENING!**

It's time for
Q&A

