

Conference Program

1st International Conference on Ultra-High-Speed Transportation

Research Meets Industry

Organized by the TUM Hyperloop Research Program of the TUM Department of Aerospace and Geodesy

The interest in revolutionary ultra-high-speed modes of transportation has been growing considerably in recent years due to, in no small part, the publication of the Hyperloop Alpha white paper in 2013 by Elon Musk and the resulting large number of initiatives started all over the world. Newly founded commercial enterprises and student organizations as well as established academic institutions and industry-leading corporations have been drawn to the topic and have begun to explore future sustainable ultra-high-speed transportation options and develop appropriate technical solutions.

The **1st International Conference on Ultra-High-Speed Transportation** aims at bringing together scientists and student initiatives with subject-matter experts from the mobility industry to foster the exchange of ideas and to discuss opportunities, potential impact and challenges of ultra-high-speed transportation. The event will take place in an online format (using the video conference tool Zoom) on the **March 1-2, 2021**.

The conference includes four Sessions (*Propulsion & Suspension Systems* and *Demand & Routes* on Day 1, *System Concepts* and *Infrastructure & Operations* on Day 2), covering the key aspects and challenges of the hyperloop technology, as well as a Keynote Lecture and a Panel Discussion. Each slot of the Sessions will comprise a 13-minute-long presentation and a two-minute questions and answer session. The speaker of each slot is marked in bold. Additional contributions will be provided to registered participants as downloadable materials only.

The conference is free of charge, but only guests that have registered using the registration form will receive access to the live stream and to the additional materials.

The Organizing and Scientific Committees are looking forward to welcoming you!

Organizing Committee

Prof. Thomas Wunderlich
(chairman)
Prof. Agnes Jocher
Prof. Thomas Hamacher
Prof. Mirko Hornung
Dr. Michael Klimke
Gabriele Semino M.Sc.

Scientific Committee

Prof. Thomas Wunderlich
Prof. Agnes Jocher
Prof. Thomas Hamacher
Prof. Isabell Welpé
Prof. Oliver Fischer
Prof. Stephan Freudenstein
Prof. Klaus Drechsler
Prof. Martin Werner
Prof. Andreas Wieser
(ETH Zurich)
Prof. Johannes Klühspies
(TH Deggendorf)

Conference Secretary

Stephanie Henne
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Day 1 – March 1, 2020

Time (CET)	Title	Authors / Speakers
14:00 – 14:35	Opening Remarks	Prof. Dr. Thomas Hofmann <i>President, Technical University of Munich</i> Dipl.-Pol. Dorothee Bär, MdB <i>State Minister for Digitization, German Federal Government</i> Prof. Dr. Mirko Hornung <i>Dean, TUM Department of Aerospace and Geodesy</i> Prof. Dr. Thomas Wunderlich <i>Head of TUM Hyperloop Program & Chairman of the Conference</i>
Keynote Lecture		
14:35 – 14:55	Innovation Ecosystems – Bridging the Gap Between Innovative Research and Economic Success	Prof. Dr. Isabell Welpé <i>School of Management, Technical University of Munich</i>
Session 1: Propulsion & Suspension Systems		
14:55 – 15:00	Introduction to the Session	Prof. Dr. Agnes Jocher <i>Department of Aerospace and Geodesy, Technical University of Munich</i>
15:00 – 15:15	Ride Comfort Transfer Function @1000 km/h	Florian Dignath¹ , Philipp Schmitz ¹ , Qinghua Zheng ¹ , Patrick Schmid ² & Peter Eberhard ² ¹ <i>thyssenkrupp Transrapid GmbH</i> ² <i>Institute of Engineering and Computational Mechanics, University of Stuttgart</i>
15:15 – 15:30	Superconductivity and Smart Control – Key Enablers to meet Hyperloop Vision	Markus Bauer¹ & Friedrich Loeser² ¹ <i>THEVA Dünnschichttechnik GmbH</i> ² <i>thyssenkrupp Transrapid GmbH</i>
15:30 – 15:40	Break	

Session 2: Demand & Routes		
15:40 – 15:45	Introduction to the Session	Prof. Dr. Johannes Klühspies <i>Faculty of Applied Economics, Deggendorf Institute of Technology President, The International Maglev Board e.V.</i>
15:45 – 16:00	Hyperloop in Germany: Feasibility Study on the Implementation of a Hyperloop System in Germany	Ana Eloisa Garcia de Gortari B.Sc.^{1,2} , Maximilian Mayerföls B.Sc. ^{1,2} , Daniel Loureiro Pacheco da Rocha B.Sc. ^{1,2} , Maximilian Stark B.Sc. ^{1,2} & Prof. Dr. Isabell Welpé ¹ ¹ <i>Technical University of Munich</i> ² <i>NEXT Prototypes e.V.</i>
16:00 – 16:15	Land management requirements and impacts when constructing Ultra-High-Speed and large-scale Transportation infrastructure projects such as hyperloops	Prof. Dr. Walter Timo de Vries¹ ¹ <i>Department of Aerospace and Geodesy, Technical University of Munich</i>
16:15 – 16:30	Introducing Hyperloop to the UK	Katelin Donaldson¹, Munya Mzenda¹ , Nourdin Mismar ¹ , Moritz Mörker ¹ , Brandon Henwood ¹ , Mercè Sánchez Oller ¹ , Gregory Dayao ¹ , Elliot Govier ¹ & Stella Antonogiannaki ¹ ¹ <i>HYPED</i>
16:30 – 16:45	Understanding the factors influencing the acceptance of Hyperloop systems	Md. Ashrafur Islam¹ , Christelle Al Haddad ¹ , Mohamed Abouelela ¹ & Prof. Dr. Constantinos Antoniou ¹ ¹ <i>Department of Civil, Geo and Environmental Engineering, Technical University of Munich</i>
16:45 – 16:50	Closing Remarks	Prof. Dr. Thomas Wunderlich <i>Department of Aerospace and Geodesy, Technical University of Munich</i>

Day 2 – March 2, 2020

Time (CET)	Title	Authors / Speakers
14:00 – 14:15	Introduction to Day 2	Prof. Dr. Thomas Hamacher <i>Department of Electrical and Computer Engineering, Technical University of Munich</i> Thomas Jarzombek, MdB <i>Commissioner for the Digital Industry and Start-ups & Federal Government Coordinator of German Aerospace Policy</i>
Session 3: System Concepts		
14:15 – 14:20	Introduction to the Session	Prof. Dr. Thomas Hamacher <i>Department of Electrical and Computer Engineering, Technical University of Munich</i>
14:20 – 14:35	Comparison of Technical Design Options for a Hyperloop System	Domenik Radeck ^{1, 2, 3} , Prof. Dr. Agnes Jocher ¹ & Prof. Dr. Thomas Hamacher ² ¹ <i>Department of Aerospace and Geodesy, Technical University of Munich</i> ² <i>Department of Electrical and Computer Engineering, Technical University of Munich</i> ³ <i>NEXT Prototypes e.V.</i>
14:35 – 14:50	Unsteady Flow Investigation of a UHSGT Vehicle driving through an Enclosed Environment	Francisco Guerrero ^{1, 2} , Rafael Andrade ¹ , Christopher Reinbold ² , Nils Wagner ^{1, 2} & Levente Csilik ^{1, 2} ¹ <i>NEXT Prototypes e.V.</i> ² <i>Technical University of Munich</i>
14:50 – 15:05	Lessons learned from MagLev train development ready to foster Hyperloop systems	Dr. Ralf Effenberger ¹ , Prof. Dr. Walter Neu ^{2,3} , Prof. Dr. Thomas Schüning ^{2, 3} & Lukas Eschment B.Eng. ^{2, 3} ¹ <i>Integrated Infrastructure Solutions GmbH & Transrapid Versuchsanlage Emsland (Emsland Transrapid Test Facility - TVE)</i> ² <i>Institute of Hyperloop Technologies, University of Applied Sciences Emden/Leer</i> ³ <i>School of Mathematics and Science, Carl von Ossietzky University of Oldenburg</i>
15:05 – 15:15	Break	

Session 4: Infrastructure & Operations		
15:15 – 15:20	Introduction to the Session	Prof. Dr. Thomas Wunderlich <i>Department of Aerospace and Geodesy, Technical University of Munich</i>
15:20 – 15:35	A vacuum technology supplier's view on Hyperloop	Tom Kammermeier ¹ , Derek Corcoran ² & Sebastian Rosenstraeter ¹ ¹ <i>Leybold GmbH</i> ² <i>Leybold USA Inc.</i>
15:35 – 15:50	Hyperloop's integration into the existing transportation landscape	Bruce Kemp ¹ ¹ <i>Virgin Hyperloop</i>
15:50 – 16:05	Design of a European Hyperloop Large Scale Technology and Research Infrastructure	Prof. Dr. Walter Neu ^{1,2} , Dr. Ralf Effenberger ³ , Lukas Eschment B.Eng. ^{1, 2} & Prof. Dr. Thomas Schüning ^{1, 2} ¹ <i>Institute of Hyperloop Technologies, University of Applied Sciences Emden/Leer</i> ² <i>School of Mathematics and Science, Carl von Ossietzky University of Oldenburg</i> ³ <i>Integrated Infrastructure Solutions GmbH & Transrapid Versuchsanlage Emsland (Emsland Transrapid Test Facility - TVE)</i>
Panel Discussion		
16:05 – 16:50	Hyperloop: where and how can the vision become reality?	Prof. Dr. Thomas Hamacher (moderator) <i>Department of Electrical and Computer Engineering, Technical University of Munich</i> Prof. Dr. Johannes Klühspies <i>Faculty of Applied Economics, Deggendorf Institute of Technology</i> <i>President, The International Maglev Board e.V.</i> Dr. Friedrich Loeser <i>Chief Executive Officer, thyssenkrupp Transrapid GmbH</i> Dr. Stephan Liedl <i>TÜV SÜD Rail GmbH</i> Johannes Spatz <i>President, Panasonic Industry Europe GmbH</i> Ana Eloisa Garcia de Gortari <i>NEXT Prototypes e.V. & Technical University of Munich</i>

16:50 – 17:00	Closing Remarks	Prof. Dr. Agnes Jocher <i>Department of Aerospace and Geodesy, Technical University of Munich</i>
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