13th International Symposium on NDT in Aerospace 5.-7. October 2021 in Williamsburg/VA

The International Symposium on NDT in Aerospace has taken place since 2008 and on an annual basis since 2010 at locations where aerospace has a home. It was initiated by the German Society for Non-Destructive Testing (DGZfP) and is run in Germany at specific intervals such as in Hamburg (2010), Augsburg (2012), Bremen (2015) and Dresden (2018). In the remaining years it takes place worldwide such as in Montreal (2011), Singapore (2013), Madrid (2014), Bengaluru (2016), Xiamen (2017), Paris (2019) and Williamsburg/VA (2020). Covid-19 forced the organizers to run the symposium completely online in 2020, which despite all constraints was well achieved in the end. Unfortunately, Covid-19 has still not disappeared in 2021 but technology in information dissemination and fortunately, communication has made significant progress over the last months. This has allowed the organizers to establish a broad and multi-facetted program offered in a significantly extended **hybrid format** for this year's symposium, which means in person as well as online participation is possible.

One of the symposium's core ideas, which emerged over the past years is to invite distinguished individuals in the field to provide **plenary talks** of a one-hour duration each, to allow them to extensively express themselves in their field of research and expertise, and to also have sufficient time to answer targeted questions from the audience. This year the following topics and individuals have been selected:

NDE 4.0

NDE 4.0 – Giving the Inspector the 6th Sense!
Dr. Ripi Singh, Inspiringnext, Cromwell/USA

Human-Systems Integration in Aerospace NDT
Prof. Collin Drury, State Univ. New York, Buffalo/USA

Digital Twins

Predictive Digital Twins and the Data-driven Future of Aerospace Systems
Prof. Karen Willcox, Univ. of Texas, Austin/USA

Additive Manufacturing

Additive Manufacturing: Opportunities and challenges for NDT
Dr. Kai Hilgenberg, BAM, Berlin/Deutschland

Space

NDE at its Extreme - Applications for Space Explorations
Dr. Shant Kenderian, The Aerospace Corp., El Segundo/USA

In addition to the plenary talks **special sessions** have been organized with respect to the first three topics, where the titles have been specified as follows:

- **The Why, What and How of NDE 4.0** (Chair: Dr. Ripi Singh)
- **Technology Challenges and Opportunities in NDE 4.0** (Chair: Dr. J. Vrana)

- **Adoption Challenges and Opportunities of NDE 4.0** (Chair: Dr. J. See)
- **Digital Twins & Simulation** (Chair: Prof. K. Willcox)
- **NDT for Additive Manufacturing** (Chair: Dr. E. Burke)

During each of those special sessions four invited speakers representing sectors such as academia, committees, consultancy, government, industry, research, and others will present their views regarding the different sessions' topics, which will then be discussed in a 45 minute panel discussion in the end of each session.

Parallel to those special sessions there will be standard **technical session**s with papers related to:

- **Component Testing and NDT Implications**
- **Numerical Simulation**
- **NDT Methods**
- **Data Management**
- **Structural Health Monitoring**

The **exhibition** can be also attended in person as well as online. This does not only apply for the visitors but as a novelty also for the exhibitors. Exhibitors will be given the possibility to present themselves in a 'virtual booth' for the first time. The exhibitors will have a virtual group room for up to 13 participants and 3 moderators. This setup means that they can run their exhibition in Williamsburg, or even far away from there (i.e. their home), in a fully self-organized manner during the symposium and can present their exhibits and receive potentially interested parties. The number of booths is understandably limited.

Last but not least, the inclusion of the younger generation to the symposium is an important aspect of the event. The symposium has hosted a **Student Challenge,** where student teams can participate in a competition, since 2019. The challenge always addresses a topic of relevance. The current topic is NDT for additive manufacturing. BAM and Safran have volunteered to get turbine blades manufactured from a material named Haynes using a calibration model designed by NASA . These samples have been sent to teams having applied for the challenge. The challenge builds on activities already launched in 2020, where student teams developed an inspection concept for those additively manufactured blades on a numerical basis. The result of this work can be viewed on https://www.ndt.net/search/docs.php3?id=25662 . Currently a target goal for this initiative is that it will lead to the establishment of a database to be used as a reference as well as for benchmarks in the longer term; in which the younger generation can claim to have become an active part. In any case this initiative becomes a part of the additive manufacturing topic of this year's symposium and possibly even beyond. Interested student teams can get further information at http://www.ndt2021.utcdayton.com/pages/students.html . That the younger generation, and specifically also students, are to being sought after to take part in the symposium is also demonstrated by the relatively low fees. For just 50 US$ they can participate in the Student Challenge and all presentations related to additive manufacturing.

The symposium will take place in Williamsburg/VA in the USA nearby to NASA Langley between October 5 and 7, 2021. Since the event is to be run hybrid, all presentations will be recorded digitally, such that they can also be viewed by participants post the event. The

symposium also includes a technical tour, which again is required to be virtual this year. However, after the positive experience last year with those virtual technical tours, one can be excited to see what is to be presented this time. The continuously updated program can be viewed on http://ndt2021.utcdayton.com/index.html .

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