

Program

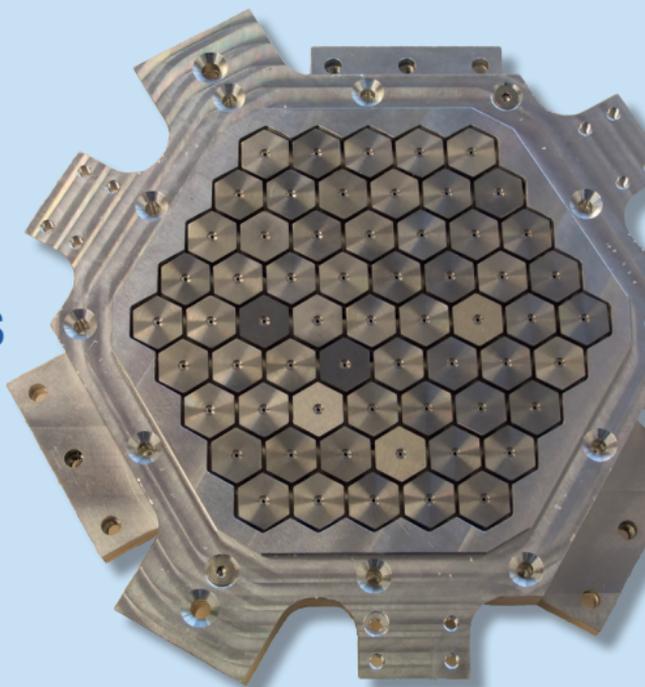
www.gas-bearing-workshop.com

2ND GAS BEARING WORKSHOP

March 27, 2017

MERCURE HOTEL
DÜSSELDORF SEESTERN

- › LECTURES
- › POSTERS
- › TABLE TOPS



ORGANIZING INSTITUTIONS

VDE

GMM VDE/VDI-SOCIETY
MICROELECTRONICS, MICROSYSTEMS
AND PRECISION ENGINEERING

VDI



Bond voor Materialenkennis

DSPE
YOUR PRECISION PORTAL

NRW
INTERNATIONAL



ORGANIZER

For detailed information please contact:

VDE/VDI-Society Microelectronics Microsystems and
Precision Engineering (GMM)

Dr. Ronald Schnabel
Stresemannallee 15,
60596 Frankfurt am Main, Germany

Phone: +49 69-6308-227
Fax: +49 69-6308-9828
E-Mail: gmm@vde.com

During the workshop:
Phone: +49 171 4695 118

IN COOPERATION WITH

Dutch Society for Precision Engineering (DSPE)
High Tech Campus 1
5656 AE Eindhoven
PO Box 80036
5600 JW Eindhoven
info@dspe.nl

POSTERS AND EXHIBITION

All attendees are invited to show a poster representing their field of competence. There will be an additional fee for poster presenters of 50 Euro.

We invite companies to join the workshop with a table-top exhibition. The fee of 500 Euro (plus VAT) for the table-top exhibition includes one ticket for workshop admittance.

For further information please contact the organizer.

GET-TOGETHER MARCH 26

Informal get-together on March 26 at 7 p.m. in the hotel bar of Mercure Seestern (at own expense).

FOREWORD OF THE CHAIRMAN

Gas bearings are a core enabling technology in high precision metrology and manufacturing. The Gas Bearing Workshop (GBW) is a forum for the gas bearing community mainly in the Netherlands, Belgium and Germany. Even though a Dutch-German cooperation in the field of precision engineering and optics has been established by some companies, a specific international forum for this technology was still missing. The GBW was established successfully in 2015. It brings together manufacturers/vendors, customers/purchasers and scientists in the field of gas bearing technology.

The GBW is set up as a one-day workshop with lectures illuminating all aspects of this technology. In these lectures leading experts from industry and scientific research present relevant advances and findings. In the first GBW in 2015 it was demonstrated that the Netherlands, Belgium and Germany have a broad and deep competence in the understanding, technological development and practical application of gas bearings. This also applies for the second GBW in 2017. Again, leading companies and institutes present their results which are inspiring for the whole gas bearing community.

Aside from the lectures, who themselves will initiate discussions, there is ample time and opportunity for personal contacts. The forum character of the GBW is going to be expanded by the opportunity to present posters or exhibit components or setups.

Another key issue that will be discussed in the 2017 GBW is the standardization of components, procedures or definitions. In all fields of technology progress and commercial prosperity has been supported by standards or guidelines. In gas bearing technology there is almost no commonly recognized reference for specifications. We are looking forward to discussing this question with representatives of buyers and vendors.

I hope that this 2nd GBW will further deepen the contact of the participants and enthusiasm for gas bearings within this Dutch-Belgian-German community on a technical level as well as on the personal level!

*Wolfram Runge
Chairman of the 2017 Gas Bearing Workshop*

PROGRAM COMMITTEE AND CHAIRMEN

Wolfram Runge (General Chair)
Beuth Hochschule für Technik Berlin

Jos Gunsing (Chairman Program Committee)
Avans University of Applied Science Breda

Farid Al-Bender
KU Leuven

Ron A.J. van Ostayen
Delft University of Technology

René Theska
Technische Universität Ilmenau

Ronald Schnabel
VDE/VDI-GMM, Frankfurt am Main

KEYNOTE

Air bearing beyond traditional precision applications

When precision motion or positioning is required, porous media air bearings provide an outstanding solution with proven performance advantages. They are a natural choice for applications in coordinate measuring machines, precision machine tools, semiconductor wafer processing machines, and other clean room, high speed, and precision positioning environments.

Based on the expertise gained through more than two decades of developing precision machines and systems with outstanding performance new applications emerge beyond the traditional applications. This key-note presentation will present the latest developments using air bearings from enhancing image resolution in computed tomography to tight fly-height control in flat panel display processing and roll-2-roll applications. The latest developments using air bearings as seals will also be shown.

Henny Spaan, IBS Precision Engineering BV

09.30 Welcome reception/poster exhibition

10.00 **Opening speech**
Wolfram Runge, Chairman

10.05 **Welcome**
Eelco van der Eijk, Technical Scientific Attaché

10.15 **Keynote**
Air bearing beyond traditional precision applications
Henny Spaan, IBS Precision Engineering BV

11.00 **Concrete Based Parts with Replicated Air Bearing Path Ways**
Christoph Hahm, René Theska, Technische Universität Ilmenau

11.30 **Panel Discussion:**
„Standardization of Gas Bearing Components, Definitions or Procedures?“

Gas bearing pads from different vendors seem very similar. Lots are used in quasi standard applications like measuring machines. Is standardization possible and advantageous? The same holds for performance specifications of gas bearings and measuring procedures

This will be discussed with representatives from manufacturers and customers

The discussion will be introduced and moderated by Wolfram Runge.

12.15 Lunch/Poster presentations/Table top exhibition

13.30 **Air bearing modeling in slip flow regime**
Jack van der Sanden, ASML Research

14.00 **Air Bearings in Semiconductor Metrology**
Bradley Engel, PI (Physik Instrumente) L.P.

14.30 Coffee break/Poster presentations/Table top exhibition

15.15 **Tilting pad air bearings for high speed applications**
Marius Nabuurs, Katholieke Universiteit Leuven

15.45 **Gas Bearings – Potential and Challenges for Future Bosch Products**
Michael Mayer, Robert Bosch GmbH

16.15 **Closing remarks**
Wolfram Runge, Chairman

WORKSHOP REGISTRATION

To register for the Gas Bearing Workshop 2017, please visit the homepage under www.gas-bearing-workshop.com and open the website "registration". You can either fill in the registration sheet and register via fax or e-mail or make use of the online registration.

REGISTRATION FEE

workshop attendance	210 €
additional fee for poster presentation	50 €
table top exhibition (Including one ticket)	500 € + VAT

Payment for registration, including bank charges and processing fees, must be made in Euro. The workshop fee has to be fully paid in advance by credit card. Your registration can only be confirmed if VDE-Conference Services has recorded receipt of your full payment.

In case of cancellation, provided that written notice has been given to VDE-Conference Services before February 27, 2017, the registration fee will be refunded less a handling fee of EURO 80.00. After February 27, 2017, no refund will be made.

WORKSHOP VENUE

Mercure Hotel Düsseldorf Seestern
Fritz-Vomfelde-Str. 38
40547 Düsseldorf
Phone: +49 211/530760
Fax : +49 211/53076444
E-Mail : h2199-sb@accor.com

The Mercure Hotel Dusseldorf Seestern is conveniently located just 5 miles (8 km) from the airport.

It takes just 10 minutes to get to Dusseldorf main train station and the Seestern/Prinzenallee S-Bahn station is only 328 yards (300 m) away.

A contingent of rooms has been reserved at a price of € 88.00 per night. Please book your room not later than February 27th referring to the gas bearing workshop.

TRANSPORT SERVICES CLOSE TO THE HOTEL

Underground station

U74 Prinzenallee
U77 Am Seestern

Railway Station

Dusseldorf Main Station (6.50 km / 4.04 mi)

Airport

Dusseldorf 7.30 km / 4.54 mi
Cologne 75.00 km / 46.61 mi

SPEAKERS LIST

- *Henny Spaan, IBS Precision Engineering, Eindhoven*
- *Christoph Hahm, Technische Universität Ilmenau*
- *Jack van der Sanden, ASML Research, Veldhoven*
- *Bradley Engel, PI (Physik Instrumente) L.P. Milford, NH, USA*
- *Marius Nabuurs, Katholieke Universiteit Leuven*
- *Michael Mayer, Robert Bosch GmbH, Renningen*

