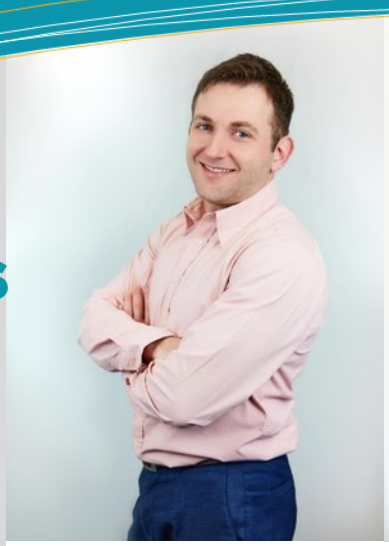
EDITION
01
August 2023

ArchiGazette



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We produce and distribute globally a new type of sensor developed by us that measures hydrogen more accurately, quickly, and reliably— thanks to this, the production and usage of H2 are now significantly safer and more cost-effective! The devices, based on advanced thermal conductivity measurements on microchips, outperform any existing solution in meeting the requirements of the H2 industry. Our technology can thus significantly advance the energy transition towards hydrogen.

Discover Archigas

Dear Ladies and Gentlemen,

Herewith we would like to introduce our newsletter around the topic of H2 measurement.

You as a producer/user of hydrogen and make a valuable contribution to the development of H2 and are thus among the pioneers of the green energy transition. We at Archigas also support this development with our new innovative sensors. With a newsletter we would like to keep you up to date in a compact and informative way. Have a quick look if you like.

We would also be pleased to receive news from your company. We would be very pleased to receive it.

In this sense with best greetings from hydrogenist to hydrogenist,

Your Wladimir Barskyi & Illya Kaufman

In this issue: :

"We must take away the fear of hydrogen!" - at a press conference at RheinMain University of Applied Sciences, renowned experts emphasize what matters now in H2 development. Learn more in our summary.

Great need and high demand for H2 analysis - in personal exchanges with interested parties from start-up to large-scale industry, the desire for optimized solutions for hydrogen measurement is evident everywhere.

About dreaming, developing, producing ... and a shared beer - a short portrait of Archigas.

Archigas news compact - from latest cooperations and memberships to attractive test discounts: News from the company.

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Highly acclaimed press conference at RhineMain University of Applied Sciences:

"We must take away the fear of hydrogen!"

One thing is certain: Efforts to abandon and compensate for fossil fuels are in full swing. One thing is also certain: Hydrogen is playing an increasingly important role in this transformation - this is confirmed not only by forecasts from scientific experts, but also (finally) by a growing political will, both nationally and internationally. But as certain as these trends may be, there is still the fundamental question: What is actually the safety of hydrogen itself? How can it be produced and used at all with minimal risk? After all, H2 is highly explosive, as we learned in school. And those who were absent from class may remember the historical pictures of the zeppelin "Hindenburg", which - filled with hydrogen - went up in a fireball in a spectacular and tragic way ...

The elementary question of safe handling of H2 was discussed at our Archigas press conference at RheinMain University of Applied Sciences (HSRM) in Rüsselsheim. "We have to take away people's fear of hydrogen," Prof. Dr. Markus Bender, Professor of Micro- and Nanotechnologies at HSRM, issued the directive - and provided the solution with reference to effective monitoring by special H2 sensors. "Suitable sensors are just as important in the production of H2 by electrolysis as they are along the supply chain: for example, to permanently check the purity, concentration and pressure of the hydrogen, the fill level of tanks and the tightness of systems, to ensure operational

You can find the press review here:

safety and ultimately to create the necessary trust in the technology. Mature sensor technology is therefore essential for the use of H2 in the energy transition!"

This is where we from Archigas came into play. At the press conference attended by numerous media representatives, we had the opportunity to describe Archigas' highly innovative sensor technology, which has been developed to market maturity, for even safer handling of hydrogen. The essential feature is the combination of the technically newly implemented and extremely precise thermal conductivity measuring principle with the so-called MEMS technology (semiconductors based on silicon wafers). In addition, we were able to announce that these systems even function in extremely humid environments - until now one of the numerous weak points of hydrogen sensors.

"The technological solution is groundbreaking. It offers optimal conditions for the required mass production of particularly small, fast, highly precise and stable analysis systems," summed up internationally renowned sensor pioneer Prof. Dr. Friedemann Völklein, Director of the Institute for Microtechnologies at HSRM until 2019. Prof. Dr. Andreas Brensing, Vice President for Research, Transfer, Sustainability at HSRM, already emphasized at the outset that the university has been very successful in carrying out projects with partners from industry for years, of which the cooperation with Archigas is an example. "Rüsselsheim can be proud of you," added Mayor Udo Bausch, which of course made us very happy too.

From left: Prof. Dr. Markus Bender, Professor for Micro- and Nanotechnologies at Hochschule RheinMain, Wladimir Barskyi (Managing Director of Archigas GmbH), Udo Bausch, Former Mayor of Rüsselsheim, Illya Kaufman (Managing Director of Archigas GmbH), Prof. Dr. Andreas Brensing, Vice President for Research at Hochschule RheinMain.

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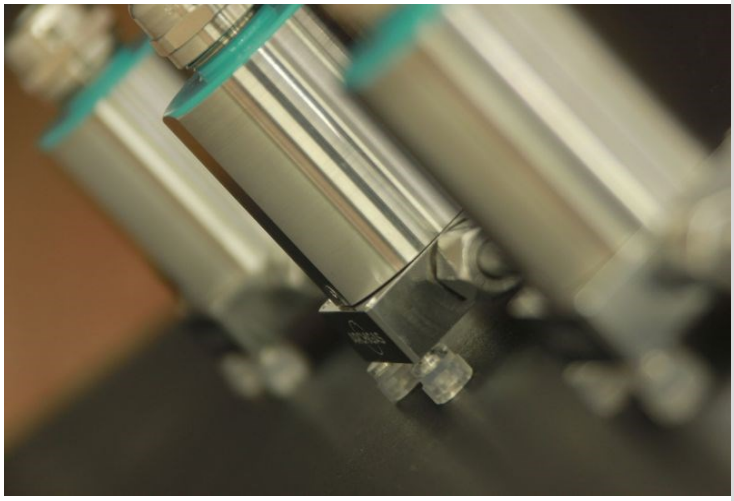
The industry expects a lot from hydrogen sensor technology - and why not?

Great need and high demand for H2 analysis

In many industries, the development of hydrogen as an energy carrier has long since ceased to be a vague prospect along the lines of "Yes, maybe someday ...". On the contrary, this step is being taken by numerous companies. This also explains the considerable response immediately after the initial presentation of our sensor technology for H2 analysis. Since the launch in spring, Archigas has received inquiries from all over the world and from a wide variety of industrial sectors. The personal exchange with interested parties, who either already use hydrogen or are currently preparing to do so, impressively confirms: The need for an industry-compatible H2 analysis is considerable, and certain aspects are repeatedly mentioned as being important.

From start-ups and medium-sized companies to major international corporations such as important electrolysis manufacturers or well-known carmakers - the list of interested parties for our new solution for H2 measurement is long and varied. The number of contacts documents first of all the fundamentally high demand for an industry-compatible gas analysis system, and in the course of the discussions it also becomes clear once again which specific properties - with different weighting depending on the industrial sector and the specific area of application - are important to the interested parties for hydrogen sensors. The central aspects mentioned again and again are: Speed, precision, stability, compatibility and, last but not least, cost. Thanks to in-depth preliminary discussions and analyses at the start of our development work, we knew the specific requirements of the industry -

we consequently wrote their consistent fulfillment into our specifications. The task now was to develop a solution that could meet both the highest qualitative specifications and the large quantitative demand - in other words, to create a sensor technology whose properties and features set nothing less than completely new standards in both respects. With the combination of fast, precise thermal conductivity measurement in conjunction with semiconductors, we have succeeded, as not only we attest, but above all leading experts from academia and the users themselves confirm. A look at the specific product data (e.g. at www.archigas.de or in technical articles such as LINK) is recommended. In addition, according to the latest findings, the sensors are also highly resistant to moisture, which until now has often been a "killer" of hydrogen analyzers.



In addition to particularly fast response times, maximum precision and reliable stability, the lowest possible acquisition and maintenance costs are mentioned in the discussions as a requirement from the industry side. Semiconductor technology makes it possible to mass-produce absolutely identical sensors at low cost without recalibration: around 1,200 sensors can be produced from a single silicon wafer of around 10 cm in diameter and offered at comparatively low prices. The only remaining question is compatibility with existing plant technology, such as is favored by particularly compact dimensioning of the measuring systems and a Plug&Play concept. The new sensors from Archigas offer both of these features at "first glance" - as is perhaps best illustrated by a recurring situation in the course of our conversations, either in person or in a video call: If we take a sensor unit in our hands, a broad smile spontaneously follows from the other person ...

Advantages at a glance:

- **Small size**
- **High accuracy 50 ppm**
- **Short response time t90 < 1 s**
- **Easy to install**
- **Corrosion resistant**
- **Minimal Influence of humidity**
- **Thermostability**
- **Cost effective**
- **Short delivery times**
- **Made in Germany**

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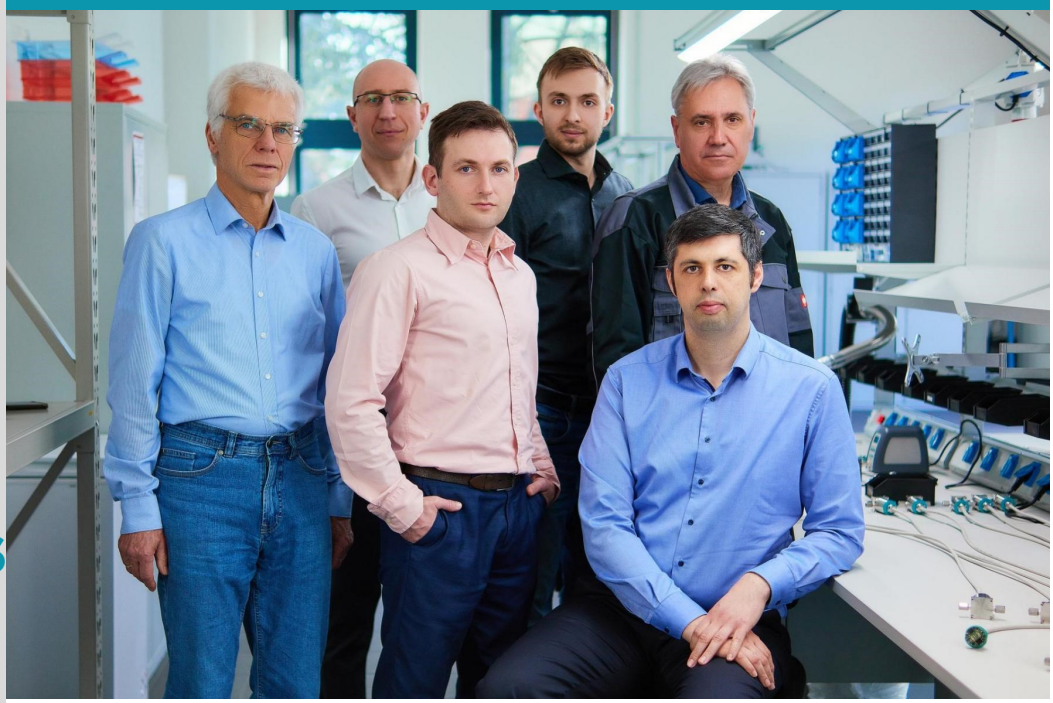

Allow us to introduce our team:

About dreaming, developing, producing ... and a shared beer

"We have to do this!" With this realization at a meeting in the beer garden, the story of Archigas began in 2020. By "this" they meant the development of an optimized sensor technology for hydrogen measurement. No sooner said than done: Driven by the common dream of making an important contribution to the development of hydrogen as a green energy carrier, the founders **Illya** and **Wladimir** literally worked day and night - until they were able to present their market-ready measurement technology in the spring of 2023. They were supported by well-known experts from the renowned RhineMain University of Applied Sciences (HSRM) such as **Prof. Friedemann Völklein**,

with which the Archigas team continues to work closely.

Illya focuses on the technological aspects in the company, is chief developer and product designer. Wladimir devotes more time to management. Both graduated in "Microsystems Engineering of Mechatronics" in 2007 and in "Applied Physics" at HSRM in 2011.

Konstantin is in charge of production. He is a trained electrical engineer with a focus on electronics and automation and has more than 40 years of experience as a technical manager. After studying "Physical and Biomedical Electronics", **Georgii** gained plenty of know-how as an engineer and then almost fifteen years in sales.

At Archigas, he works as a sales engineer and in business development. He is supported by **Jacqueline**.

Patrick is completely in his line of work as (co-)responsible for sensor development and production. He has a Master of Science (M.Sc.) in "Applied Physics" from the HSRM, while **Tom** is a production engineer in the team and is currently writing his Master's thesis at the HSRM. For the external presentation **Thomas** is at the start. After several years as a journalist, he has been a PR professional for 20 years, supporting the public relations of companies that have something to say.

But the best way to get to know our team is in a personal conversation. Maybe over a cup of coffee? Okay, or even in the beer garden.

News compact

+++ **The best way to measure the measurment: Try out the unique H2 sensors from Archigas at attractive conditions now!** Is this the big chance that what belongs together grows together? If you are asking yourself this question in view of our analysis technology, why not put it to the test? Archigas offers cost-effective test options when ordering a first sensor unit. Interested companies receive these after personal arrangement in a version exactly corresponding to the use at an attractive preferential price. +++

+++ **There we are! Archigas now member of H2BZ - Initiative Hessen e.V. and HYPOS.** The association H2BZ (Link) focuses on the market development for hydrogen and fuel cell technology in Hesse, networks discussions and views from politics, economy, science and society and initiates and operates technology transfer. The Germany-wide network HYPOS (Link), on the other hand, aims to establish a nationwide green hydrogen economy in the hydrogen region of Central Germany. We say hello and are very pleased to be part of both associations. +++

+++ Further sales partner in Belgium: Benelux Process (Link) specializes in innovative technology solutions for laboratory and production facilities. With over 35 years of experience in this field, our new partner offers environmentally friendly technologies, products and services. Archigas fits perfectly into our portfolio, we think. +++

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ARCHI*Gazette*

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