

MOVERS

Rolf-Dieter Heuer, director-general, CERN, Geneva, Switzerland



2004–present: Research director, high-energy physics, DESY, Heidelberg, Germany

1998–2004: Professor, University of Hamburg, Hamburg, Germany

1994–98: Spokesman, OPAL Collaboration, CERN, Geneva, Switzerland

Rolf-Dieter Heuer built a strong career at the leading edge of particle physics, in part by listening to advice — for example, his high-school teacher confirmed his notion that a career in anything other than physics would be a mistake. As he prepares for his biggest career challenge yet — taking over in 2009 as director-general of CERN, the European laboratory for particle physics near Geneva — he plans to continue listening to his colleagues to better guide the future of international particle physics.

Heuer started off with a diploma in nuclear physics from the University of Stuttgart. But the detection of a subatomic particle, dubbed the J/ψ particle, intrigued him enough to alter his graduate plans. He subsequently worked on the neutral decays of the ψ' particle, the heavier sister of J/ψ , for his PhD at the University of Heidelberg. He was soon made a member of the JADE experiment (a collaboration between Japan, Germany and Britain) at DESY, the particle-physics centre in Heidelberg — one of the four experiments necessary to detect the gluon, the elementary particle that causes quarks to interact. "I was always motivated to work at the energy frontier — wherever that was," says Heuer. That frontier soon moved to the Omni-Purpose Apparatus (OPAL) at CERN's Large Electron-Positron collider, taking Heuer with it.

Heuer says his recipe for success as OPAL's spokesman was simple: give people enough freedom to do their job, which instills more motivation. After four years, Heuer moved to the University of Hamburg before becoming research director for the national particle-physics programme at DESY in 2004. There, he decided that working at the energy frontier meant expanding the energy frontier. So he focused the particle-physics efforts on CERN's Large Hadron Collider (LHC) and preparations for the International Linear Collider.

Heuer was an obvious choice to lead CERN, says former OPAL colleague Austin Ball. He says that as the LHC moves from construction to operation, it needs a physicist motivated by curiosity to pursue new science, including the Higgs boson, the missing piece of the standard model of particle physics, which is needed to explain how mass exists. Its detection is Heuer's top priority, as it will set the future of particle-physics research. Once that trajectory is set, Heuer must determine how to position CERN — taking into account preparations for the next colliders, decisions he doesn't take lightly. "Whatever CERN decides affects the worldwide community," he says. ■

Virginia Gewin

BRICKS & MORTAR

Singapore gears up for translation

Already a heavy-hitter in basic research, Singapore has set its sights on the clinic. Last month, the city-state opened its Institute of Medical Biology (IMB), dedicated to translating biomedical science into treatments, in the Biopolis campus.

Biopolis, a 18.5-hectare complex, opened six years ago and is still under construction. More than 1,000 scientists study molecular biology, bioinformatics and bioengineering in its seven institutes. The IMB's 37,000 square metres houses 120 scientists in 13 labs. Researchers started moving in last April.

At the IMB, applying science to the clinic — translational research — comes first, says director Birgit Lane. "People aren't finding they have to pay lip service to translational principles in order to get their funding," she says.

Lane wants her colleagues to strike up collaborations with physicians in Singapore and abroad. A cell biologist who studies rare skin disorders, Lane works with doctors at Singapore's National Skin Centre, which provides her with samples from patients.

And IMB researcher Sai Kiang Lim also works in Singapore National University's surgery department. Her team uses mesenchymal stem cells derived from embryonic stem cells as a treatment for heart disease. At the

moment, she is using cell and animal models, but clinical studies are on the horizon.

"I have always been collaborating with clinicians but we were never able to bring anything close to the clinic," says Lim. If all goes well at the IMB, the clinic should not be far off, she says.

Lim keeps her clinical collaborators up to date on her research so they can anticipate stumbling blocks. She also directs her bench work towards treatments: her lab tests therapies on diabetic pigs, which are a better stand-in for humans with heart disease than healthy animals are.

"We can already see a big difference in the amount of clinical material we're going to have from the Singapore site," says Irwin McClean, a geneticist at the University of Dundee in Scotland who collaborates with Lane.

Singapore's biomedical boom has sucked up talent from around the world, and Lane says the IMB plans to hire up to seven more investigators.

Yet despite bold goals, the IMB already faces a hurdle: two of its most prominent scientists now split their time with Britain. Stem-cell pioneer Alan Colman is about to join King's College London. And from this month, Lane will lead a biomedical centre at the University of Dundee. ■

Ewen Callaway

POSTDOC JOURNAL

Biopolis dreams

The Biopolis complex in Singapore is both an inspiring and daunting place to do a postdoc. The motto for the complex of nine glass buildings erected within the past seven years is "racing with the world's best towards the very limits of modern science". These ambitions clash spectacularly with the mundane realities of lab work. As a postdoctoral fellow there, I am acutely aware of this stark contrast between dream and reality. It weighs heavily on me as I attempt to chart my course through a new year fraught with uncertainty.

Furthermore, how do I adapt to the local working environment? Research is not done in a vacuum — everyone makes a difference, whether administrative staff, a lab technician or the 'big boss'. Having been educated in the United States, I notice many differences, such as in communication style, approach to project management and work ethic. The highly structured and hierarchical nature of an Asian workplace contrasts with the collegial atmosphere of a US academic institution, and personal interactions differ accordingly. Figuring out how to respond and adapt is important in our international community.

The new year will bring many changes and promises to be challenging at many different levels. I have to remain focused and positive, and hope to emerge a better scientist and person. ■

Amanda Goh is a postdoctoral fellow in cell biology under the Agency of Science, Technology and Research in Singapore.