



# A decade as a foundation university

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Jubileum!

## CHALMERS

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# A decade as a foundation university

This year it is 175 years since Chalmers was founded thanks to William Chalmers, a director of the East India Company, bequeathing half his wealth in order to found an industrial school. The anniversary also coincides with another anniversary: it is ten years since Chalmers, after 57 years as a state university, came under the ownership of a foundation.

As newly appointed chairman I am in the process of learning more about the history of Chalmers and I have realised that the last decade has been an extremely interesting period. As a foundation university Chalmers has acquired greater potential in many important areas. The path to achieving this has been long and not without complications, although these have been successfully overcome. The foundation was launched on July 1, 1994, with Anders Sjöberg as president and prime mover and the county governor at the time, Kjell A. Mattsson, as chairman. Since then the foundation has been guided skilfully for many years under the astute chairmanship of Sören Mannheimer.

During the years it has been a foundation university Chalmers has been renewed and developed. With the support of the foundation new investments have been made in areas such as environmental science, IT and biosciences.

It is also evident that the innovation system has been reinforced and the work being done has been marked by a more distinct entrepreneurial approach. I feel this is very important. The foundation university's

openness and potential has made Chalmers into an even better collaborative partner for industry and society. The Lindholmen area, for example, is a very tangible result of the strong interaction between Chalmers, Göteborg University, the City of Gothenburg and industry.

An anniversary is an ideal opportunity to look back on the past. Our reflections have been expressed, among other things, in this publication, which briefly describes the origin of the

foundation and the most important changes that have taken place. I hope it makes interesting reading. An anniversary, however, is not the end. Challenges and exciting opportunities await Chalmers as a foundation university. I am looking forward to collaborating with many Chalmers friends as we set off on the path towards fulfilling our ambitious goals and expectations.

Avancez!

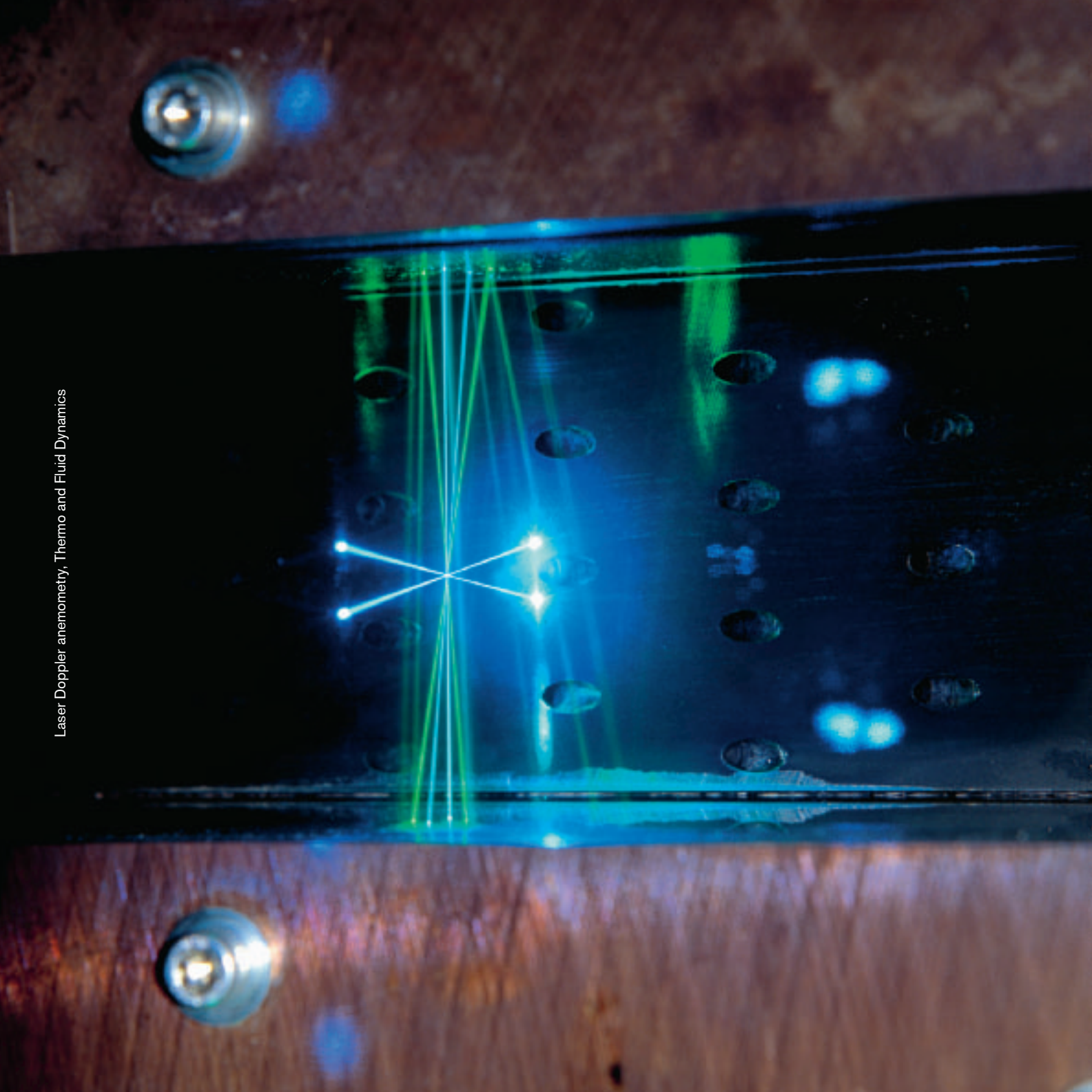
*Kurt Eliasson*

Chairman, Chalmers University of Technology Foundation





Laser Doppler anemometry, Thermo and Fluid Dynamics



# Chalmers acquires greater freedom

In conjunction with the 900th anniversary of the founding of Bologna University in 1988 a document was formulated that came to be known as *The European Universities' Magna Charta* and which, among other things, states the following basic principles:

- To meet the needs of the world around the university, its research and teaching must be morally and intellectually independent of all political authority and economic power.
- Teaching and research in universities must be inseparable if their tuition is not to lag behind changing needs, the demands of society and advances in scientific knowledge.
- Freedom in research and training is the fundamental principle of university life.

The forms for how these freedoms could best be achieved and how the academic world should be organised have naturally varied at different times and from country to country. In Sweden, the state is responsible for higher education. It is thus parliament and the government who decide on the rules and how resources are allocated.

At the beginning of the 1990s Sweden had a right-wing government. In September 1991, its declaration included the aim of creating more autonomous universities and colleges. Among other things, they wanted to examine the prerequisites for a transfer to independent foundations. Regarding the reasons, the Minister for Education at the time, Per Unckel, says:

*“We had the core idea of releasing all universities and colleges and at a number of selected universities and colleges we would go one step further and create reference universities as a basis for experiment and in doing so generate greater dynamism. In the more concrete discussions regarding technical remodelling we realised quite quickly that a foundation could be a good form for the uppermost level of the organisation.”*

The government did not go quite as far in its decision when, in October 1991, it invited universities that were interested to collaborate. The aim was to give a freer operating form for one university of technology, one large university and one small university. Chalmers' university director at the time, Folke Hjalpers, remembers:

*“Chalmers' president, Anders Sjöberg, accepted the government's offer immediately. We had a good level of co-operation with the Royal Institute of Technology in Stockholm and Umeå University as at the time we believed that every university that was interested should be offered the transfer to the freer foundation form. We did not see ourselves as competitors, which meant that the three heads of administration could work together on determining the size of the foundation capital. We realised that the capital must be sufficient to allow operations to be run on the yield. This meant that we were thinking in terms of complete economic freedom from the state, which also supported the idea that the universities that were reformed ought to own their own properties.”*

Anders Sjöberg describes what happened:

*“Back in the 1980s we had discussions at Chalmers on how we could improve the quality of our work through greater freedom. The government’s offer brought this to the fore and intensified our discussions. At first the discussion focused too much on the organisational form and it was only when we concentrated on what we wanted to achieve that unity emerged.”*

The discussions led to the board of Chalmers University of Technology unanimously adopting a list of freedoms they wished to attain:

- The freedom to build up the University’s own funds
- The freedom to own and manage its own properties
- The freedom to decide on its own organisation
- The freedom to develop its own career and human resource structure
- The freedom to develop its own recruitment process

The discussions thus shifted to how these freedoms could be achieved, as there was already agreement on the desire to achieve them. Professor Peter Jagers, chairman of the faculty committee at Chalmers from 1993 to 2002, comments on the internal discussions:

*“A positive interest in the government’s proposal emerged very quickly at the engineering-oriented departments. The natural science departments, however, were hesitant. Extensive discussions ensued, with the challenge of being able to arrange the way we operated as an incentive. There was still some doubt as no one wished to create dissonance in the system; that Chalmers*



*would deviate too much and be out of line with the rest of the Swedish higher education world. Anders Sjöberg did a very important and very admirable job in guiding the discussions correctly. His personality and contribution had a considerable bearing on the final outcome.”*

In December 1992, the government presented its proposal and the prerequisites for the transfer to becoming a foundation university. Umeå University had withdrawn and the remaining interested universities were the Royal Institute of Technology in Stockholm, Chalmers University of Technology and the University College of Jönköping. In March 1993, the Chalmers University of Technology board decided to continue to be part of the process.

At Chalmers discussions led to widespread agreement to proceed. Peter Jagers explains: *“Within the Faculty Committee there was a broad majority in favour of a transfer to a foundation. However, the faculty did not want operations to be run in the form of a limited company, which was Per Unckel’s idea. There were fears that this would result in too much business thinking within the academic world.”*

Anders Sjöberg recalls:

*“The discussions on the Chalmers board were very constructive. Considerable emphasis was placed on the standpoint of the students. The trade unions were initially opposed to the organisational form that had been put forward but we had a very good dialogue. Once the decision was reached they congratulated me and said: ‘We are on board with you’. A very tangible reflection of the Chalmers spirit.”*

The government bill *Universities in Foundation Form* was presented in April 1993 and in September the board of Chalmers University of Technology decided to formally apply for Chalmers University of Technology to become a foundation university.

In September 1993, the government also decided to choose Chalmers instead of the Royal Institute of Technology for the transfer to a foundation. Per Unckel explains:

*“There was very close competition between two completely equal and equally equipped universities. Two principal arguments decided the issue. As the funding was fixed the capital would have a slightly greater impact at Chalmers, which was marginally smaller. In addition, the feeling was that there was slightly more vitality and free thinking in Gothenburg.”*

Between September 1993 and June 1994 preparations took place at the Ministry for Education and Science and at Chalmers, including the drafting of a transfer agreement and a fifteen-year general agreement.

In July 1994, Chalmers University of Technology as a foundation university was launched.





# Early endeavour to achieve greater freedom

The former Minister for Education and Science Per Unckel's statement that "the feeling was that there was slightly more vitality and free thinking in Gothenburg" is a sign of the willingness to achieve greater freedom that emerged at Chalmers well before the question of establishing a foundation was on the agenda.

Back in the 1980s, discussions took place on how to reduce Chalmers' dependence on state regulations. Chalmers president at the time, Sven Olving:

*"All leadership is basically individual. The Higher Education Ordinance is really not bad but it impedes individual leadership. It was therefore important for me to work to release Chalmers from the Higher Education Ordinance."*

Folke Hjalpers, university director at the time, says:

*"During Sven Olving's time as president we were involved in quite active discussions about the need to function in a freer way, without detailed state control. From Chalmers' point of view we highlighted the idea of free zones for the universities. We also conducted a discussion via the press in an article that threw down the challenge 'Free the universities'."*

One example of the negative effect of detailed control is the introduction of the new Industrial Engineering and Management programme. The Chalmers management had realised the need and were willing to

complement the traditional engineering-based sciences and set up a programme directed at *the realisation* of technology. This insight was already in existence in the 1970s.

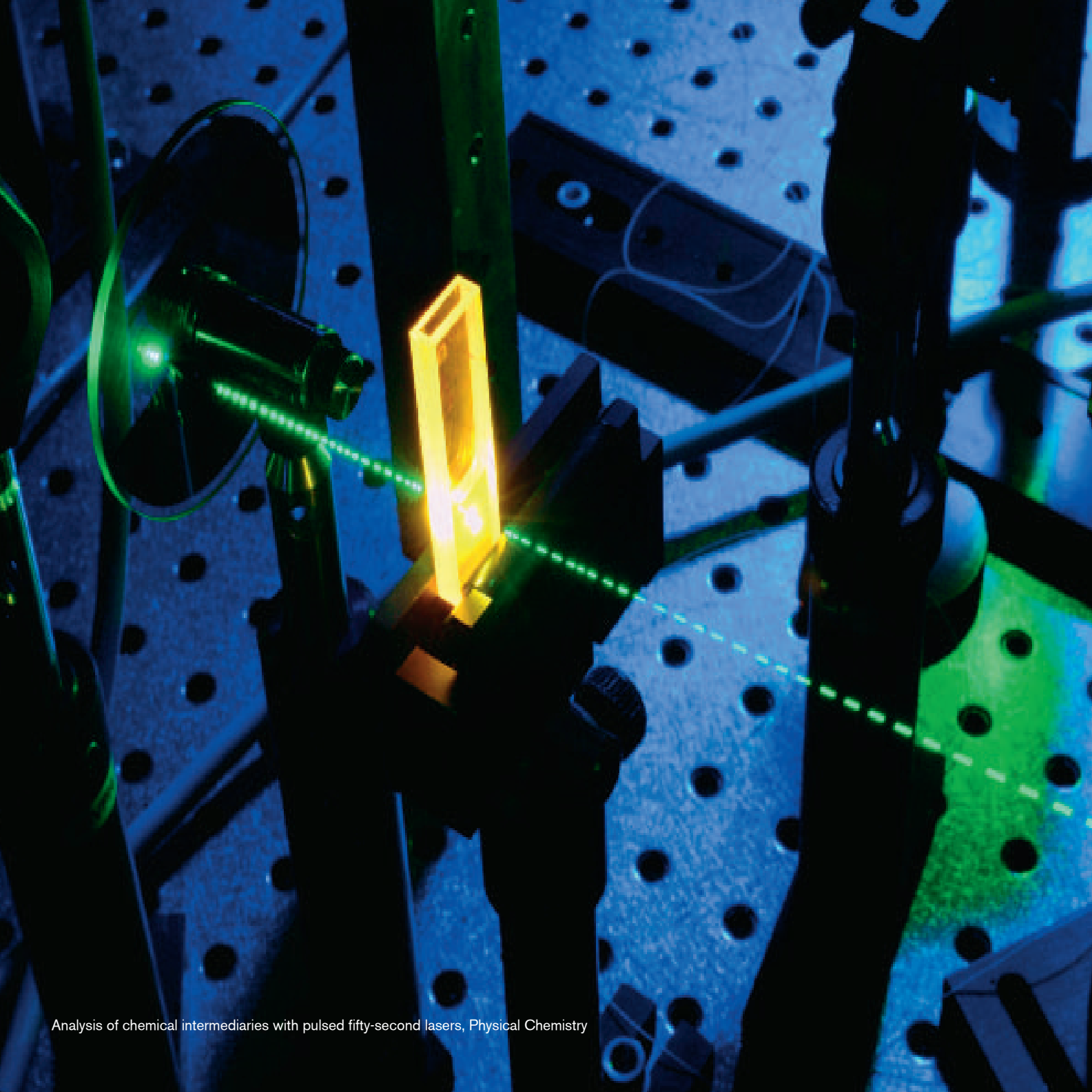
Despite the fact that the idea came from Chalmers, Linköping University was given the Industrial Engineering and Management programme. A decade was to pass before Chalmers got it.

Even with regard to the career structure Chalmers tried to find its own path. A new professor, for example, could be appointed before the present holder's retirement, and in the middle of the 1980s individualised salaries were introduced for professors. Vice-presidents were also something new at Chalmers.

Another aspect of Chalmers' "company culture" and climate is the many years of excellent collaboration with industry.

When more market-funded research was required a request was put to the government to set up a permanent economic unit (a foundation) outside the University, which could work subject to business conditions to ensure that Chalmers' R&D expertise could be used in direct collaboration with industry. This led to the formation of Chalmers Industrial Technology (CIT) in 1986, with Professor Holger Bohlin as chairman.

Together with the innovation activities started under Professor Torkel Wallmark there was a gradual emergence of an entrepreneurial culture at Chalmers.



Analysis of chemical intermediaries with pulsed fifty-second lasers, Physical Chemistry

Chalmers also had a debate on increased freedom with the government and ministries. The Minister for Education and Science at the time, Lena Hjelm-Wallén, wrote in 1985 to Sven Olving:

*“... As you are aware the government has initiated trials involving so-called free municipalities. I feel that it would be interesting to try something similar at the universities. I am therefore inviting you and your board to become involved in constructive thinking around the potential for implementing trials involving ‘free zones’ within the collective rules of the universities ...”*

Sven Olving’s reply summarised Chalmers’ longing for freedom and the different view of the control philosophy:

*“... The rules we have are generally not that bad. We would not act much differently if no rules existed. But rules cannot generate success, they can only reduce the risk of making bigger mistakes. No venture that in modern times is exposed to international competition – and this is the case at Chalmers – can perform optimally through management by regulations. Regulations as detailed as ours are not a productive control system. What we need is a completely different principle, i.e. management by objectives, which is applied in the majority of operating areas that are subject to competition ...”*

Nine years after this statement was made Chalmers was granted its freedom and the opportunity to test its own definition of management by objectives.





# The foundation universities threatened

The general election in September 1994 resulted in a change of government and the Social Democrats came to power. The new Minister for Education and Science, Carl Tham, did not share the opinion of his predecessor, Per Unckel, about the excellence of the new foundation universities. Through a number of bills the conditions for the foundation universities were changed in certain key respects.

A serious blow to the original idea of a foundation was that Chalmers was not given the opportunity to acquire land and buildings on the Chalmers campus in central Gothenburg. Control over premises is a key issue and a vital aspect in the light of the fact that Chalmers has more than 200,000 square metres of floor space. Per Unckel comments:

*"We ought to have realised the difficulties with regard to the properties. As I recall it was an old bone of contention that had to be resolved first. It is a pity that the properties were not included in the transfer to a foundation."*

What he is referring to is the fact that on setting up the foundation Chalmers had been granted an option to take over its properties. The option was valid until June 30, 1995. The bone of contention was the land the City of Gothenburg had given to the state back in the 1930s. This transfer was subject to certain conditions that proved insurmountable. Time passed and when the option ran out Chalmers requested renegotiation and an extension of the option agreement. The government refused and instead pushed through the transfer of the properties to the state-owned property company Akademiska Hus.

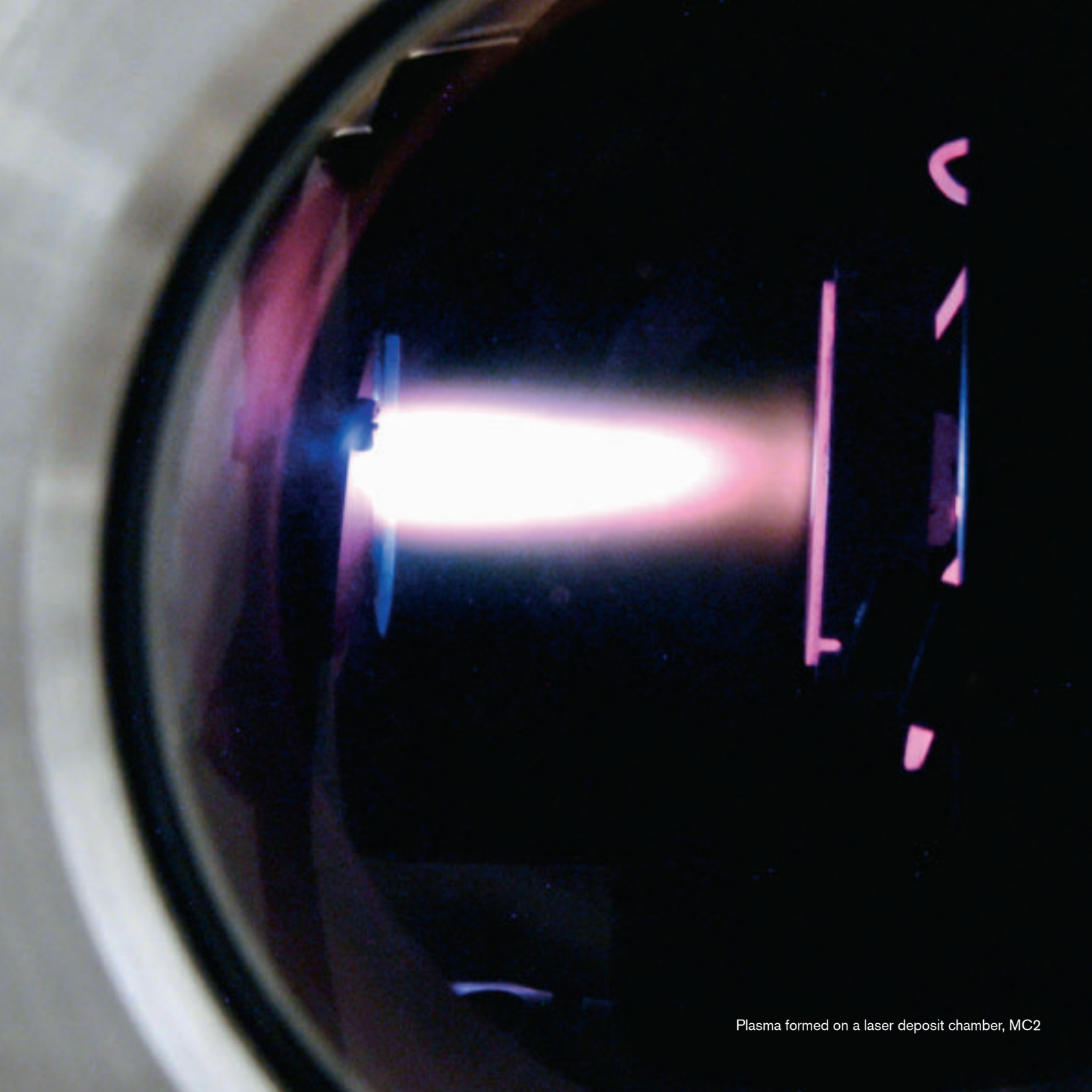
In January 1996, the actual setting up of the foundation was called into question when representatives at the Ministry of Education and Science stated at a seminar that they ought to re-examine whether it was possible to return Chalmers and Jönköping University to the state university system.

In a ministerial memo the government sought to grant itself the right, without an application from the Foundation, to change both the purpose and the administration rules. The memo was circulated for comments and virtually all the referral bodies were critical of the proposal as it was in conflict with both the constitution and the European Convention.

There was a strong reaction to the proposal at Chalmers, where they were working on implementing all the changes as a result of the transfer to a foundation. The government's actions led to both concern and uncertainty.

When the research bill was presented in September 1996 the proposal had been limited to the government being able to appoint and dismiss members of the Foundation board.

The first board of the Chalmers Foundation was totally independent and had been appointed by a special election body in true academic tradition. Now the social democratic majority decided that it would be the government that would in the future appoint the chairman and the majority of the other members of the Foundation board. The chairman of the board, county governor Kjell A. Mattsson, and three other board members were dismissed and replaced. Deputy chairman Gunnar L. Johansson, remained, however, and in doing so represented vital experience and continuity. The new board, with Sören Mannheimer as chairman, also proved to have considerable



Plasma formed on a laser deposit chamber, MC2



expertise and integrity and Chalmers soon had a calm working environment. At the same time the government had pushed through one of its important principles.

Certain hitches also arose during the first few years when the state failed to handle the settlement of VAT compensation to Chalmers as agreed. As a foundation university Chalmers had been assured that it would be treated with competitive neutrality in relation to the state universities. The withholding of funds by the Ministry of Education and Science disrupted the order of things. However, even these negotiations turned out well in the end. Sören Mannheimer was involved in negotiating with the Ministry:

*“Our line of reasoning was that Chalmers would focus on collaboration with the regional university colleges in western Sweden and this line of argument marked an opening in the discussions with the Ministry. The ice was broken and we could negotiate a solution to the financial issues.”*

Peter Jagers, chairman of the Chalmers Faculty Committee, comments on the atmosphere that prevailed between the University and the Ministry of Education and Science:

*“There was a period of 2-3 years when I felt that the Ministry did not want anything to do with the Chalmers management. The faculty, however, established contact with the under-secretary of state Göran Löfdahl and we succeeded in convincing the Ministry of what we at Chalmers wanted.”*

When the question of the transfer of properties to the foundation came to the fore this delayed the commencement of a SEK 400 million project, the Microelectronics Centre, today known as MC2. Municipal councillor Göran Johansson:

*“From the municipality’s point of view we were involved in supporting the*

*MC2 investment as it was important for Gothenburg. When things started to go less smoothly we were involved in discussing with the Ministry of Finance to enable the whole thing to continue moving forward.”*

The MC2 investment in autumn 1999 was yet another point of dispute. The annual rent subsidy of SEK 38 million promised several years previously by both the government and parliament was withdrawn in the budget bill without any warning or objective justification. Chalmers president Jan-Eric Sundgren wrote in the annual report:

*“The effects of this withdrawal, which represents approximately 10 per cent of the faculty grant, will have an impact on research at Chalmers over a long period. Successful research requires long-term, stable planning conditions. This cannot be emphasised enough if we are to have a chance of seriously competing with the most successful universities in, for example, the USA.”*

Today Chalmers is generally accepted as a foundation university. Evidence of this is the answer that Minister for Education and Science Thomas Östros gave to Sören Lindgren, one of the union representatives at Chalmers, in 2003. One of the questions was: “Can you envisage changing Chalmers back into a state university?” Two key points in the reply were:

– *“Chalmers is a foundation university, which is characterised by high quality and good results within both education and research. I am, however, convinced that Chalmers would have been a very successful university even if it had remained a state university.”*  
– *“It is positive that the foundation universities have been integrated successfully into the ‘family’ and I do not see any reason to try to tear up the decision regarding the foundation universities.”*

Research into biological applications of optical manipulation and imaging methods



# Differences and similarities

What is the difference between being a foundation university and being a state university?

Before the setting up of the Foundation, operations at Chalmers were governed by state ordinances and official documents placing appropriations (government grants, votes of supply) at the disposal of the authorities concerned, which is common to all Swedish universities and colleges.

Today the Chalmers framework is governed by the rule of private law, mainly the Foundation Act and the Companies Act, as Chalmers University of Technology is now owned by a foundation and operations are run in the form of a limited company.

The relationship with the state is now based on agreements instead of public law regulation, which applies to state universities and colleges. There is, however, a certain degree of public law legislation that also applies to a foundation university. This includes the right-of-access principle, procurement rules, examination rights and equal treatment of students.

The private law regulations offer Chalmers as a foundation university the potential, which did not exist previously, to

- enter into agreements as an independent legal entity
- acquire properties
- set up new bodies, e.g. subsidiaries
- arrange its own internal organisation
- establish its own service structure and handle employment issues

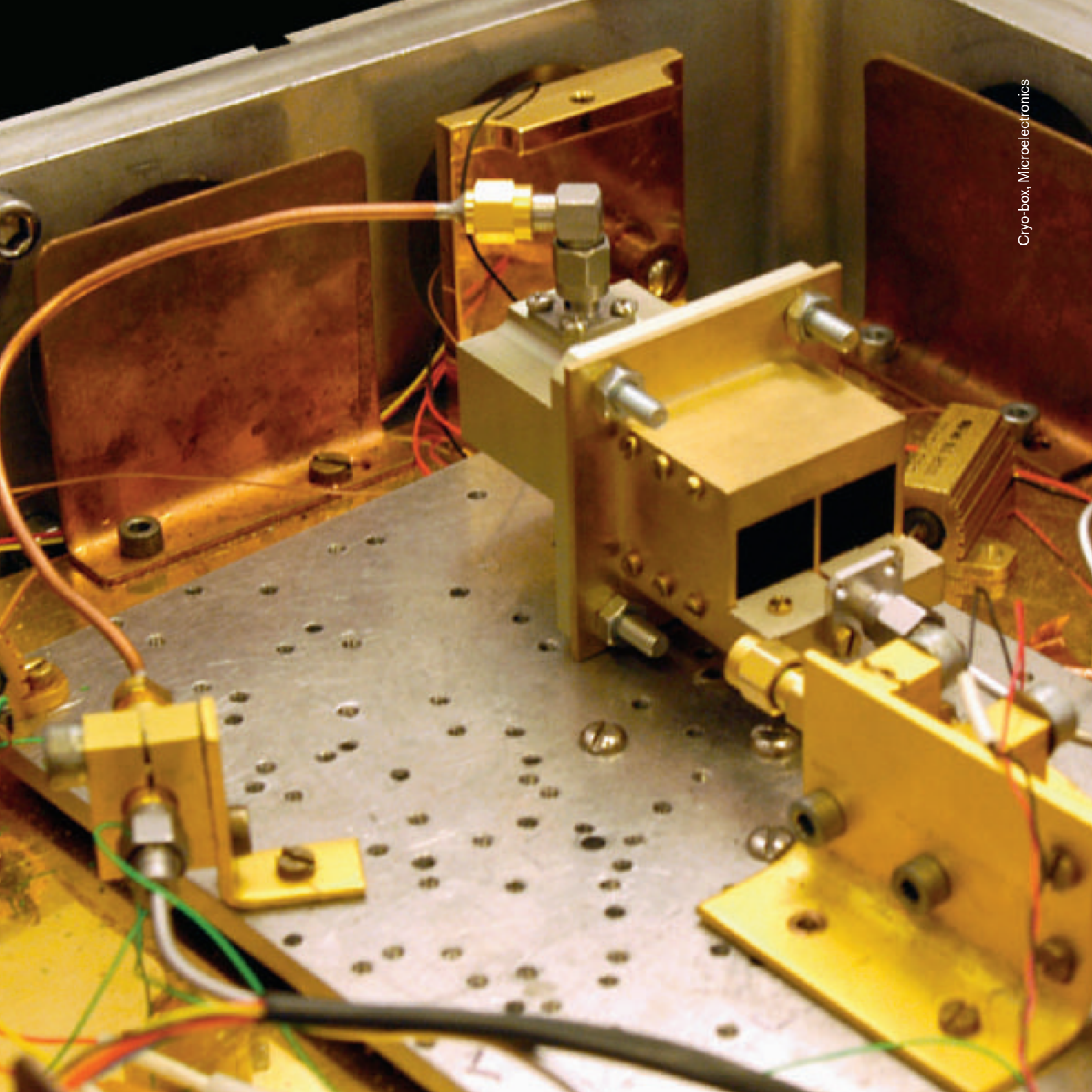
It is thus the totality, with a foundation that owns a limited company through which education and research is conducted, that is the strength in the new organisation. This produces a focused owner that can concentrate on operations. Sören Mannheimer, the chairman of the Foundation board from 1997 to 2004, says:

*“The primary task of the Foundation is to be the owner of Chalmers tekniska högskola AB. This means exercising the role of ownership and acting as a general meeting. It is thus the Foundation that appoints the board of the University company. But it is important that the Foundation is not an operative part of the University’s work. The operative work is the task of the board of the University company, the President and the University management.”*

The Foundation is the ultimate guarantor that Chalmers fulfils its undertakings to the state and other key parties. The foundation capital is the financial base for the Foundation’s assignment. The Foundation is also responsible for the management of the Foundation capital and works to ensure that the financial resources are used well. Within the available framework the Foundation can promote and stimulate the development of Chalmers through special investments proposed by the University management. Sören Mannheimer:

*“The added financial muscle is the principal element that enables us to act more rapidly and more powerfully.”*





He is supported in this by President Jan-Eric Sundgren:

*“Chalmers’ investment in the environmental field has presupposed free, unrestricted equity, which we did not have as a state university. Chalmers’ establishment and expansion at Norra Älvstranden (Chalmers Lindholmen) is also an example of where the Foundation’s investments have made possible very focused action and led to rapid, positive development. Among other things, the unique potential to invest in properties has been utilised in the investment at Chalmers Lindholmen.”*

The potential for setting up subsidiaries has also been used in the formation of the IT University, which Chalmers and Göteborg University run jointly. This is an area in which Chalmers’ freedom has been exercised and is something Göteborg University lacks.

As regards the service and career structure, Chalmers can now adopt its own structure. In 1995, Chalmers introduced a career structure that entailed a whole range of changes compared with the state system. Three years later the state model was changed in the same direction. Former Göteborg University vice-chancellor Bo Samuelsson says:

*“It is exciting to have Chalmers as a foundation university. One of the freedoms I feel they have utilised is the potential to appoint people more quickly.”*

Naturally there are still major similarities with the state universities. Even if Chalmers is a foundation university run in limited company form it is important to point out that Chalmers is still basically an academic institution and will remain so. Chalmers is thus covered entirely by the principle of freedom of research as formulated in the university Magna Charta and the Higher Education Act. Chalmers as a foundation university is thus part of the national university system and co-operates actively in both national and regional university alliances.

Chalmers receives state grants for undergraduate education and basic research in the same way as state universities. Chalmers researchers can also apply for grants from the public research councils.

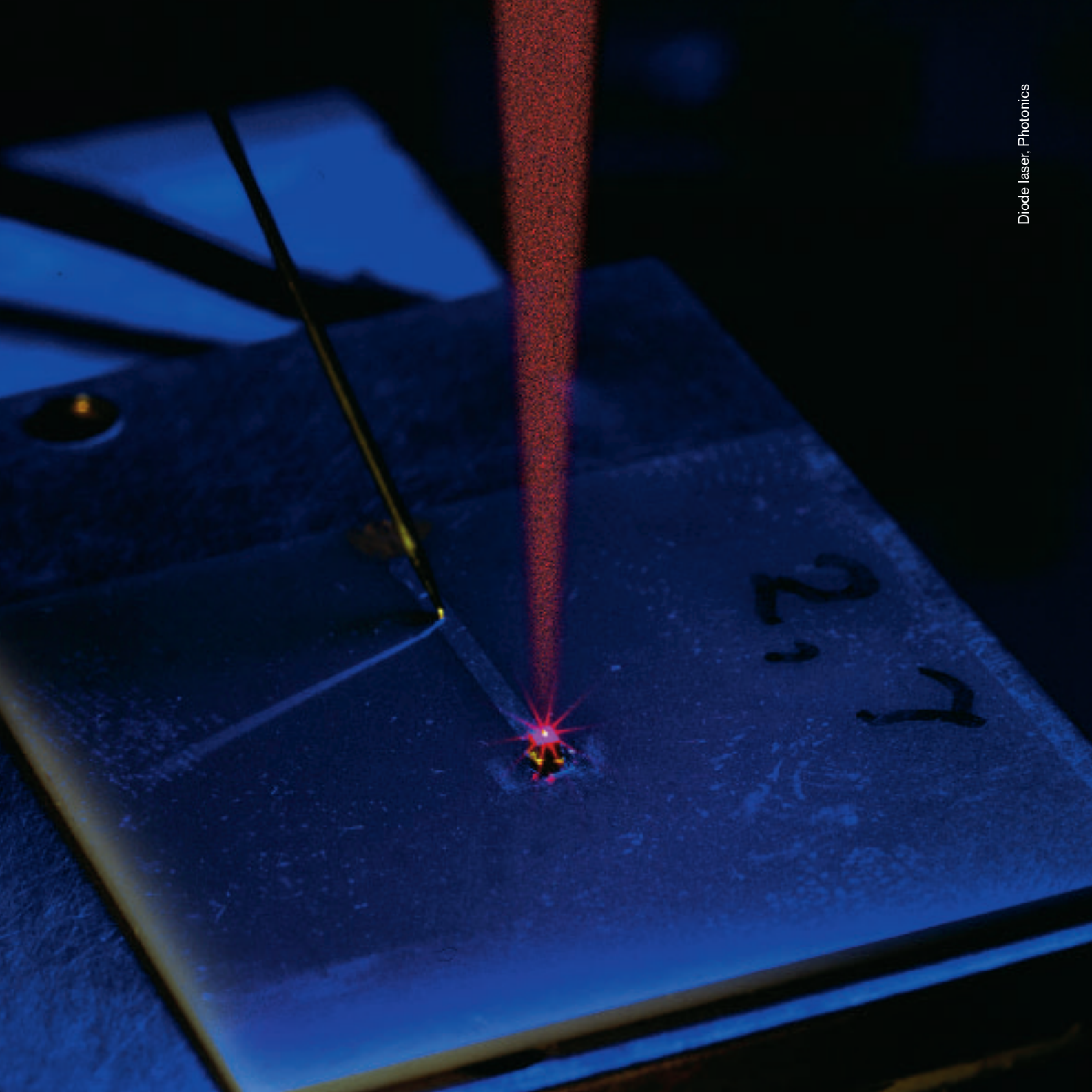
Chalmers has chosen to become affiliated to the national co-ordinated enrolment of students, which takes place through the National Higher Education Admissions Office.

Chalmers is also a voluntarily affiliated member of the National Swedish Agency for Government Employers.

In agreements with the state, Chalmers is subject to the same quality examination as the state universities and also has agreements with the state regarding operational follow-up.

Chalmers’ operations are, like the state universities, subject to examination by the Swedish National Audit Office.







# Foundation capital

The setting up of the Foundation gave the University a foundation capital of SEK 1.6 billion. This is a large sum of money although the University did not have unrestricted access to the whole amount. In the conditions governing the transfer to a foundation it was decided that almost SEK 400 million should be allocated to secure pensions for the employees.

During the 1990s the Foundation could benefit from a strong stock market, which had prevailed for several years. This has meant that no less than SEK 2 billion has been allocated to ownership undertakings and special investments during the first ten years as a foundation university.

*“My presidential colleagues at other seats of learning have looked at Chalmers with a certain degree of envy,”* explains Chalmers President Jan-Eric Sundgren. The chairman of the Foundation from 1997 to 2004, Sören Mannheimer, comments:

*“The foundation capital of SEK 1.6 billion more than doubled during the stock market rally and this put pressure on the board of the Foundation to do something. I am pleased that the Foundation released so much capital during the stock market boom years of the 1990s. This considerable sum of money meant that a number of strategic investments could be made that would otherwise not have been made.”*

Despite the fact that the properties were not included in the transfer to a foundation Chalmers has with the funds of the Foundation been able to invest several hundred million

kronor in property when the former Vasa hospital area was purchased and when operations at Lindholmen were built up and expanded. In both cases the arrangements took place in close collaboration with the City of Gothenburg. Chairman of the City Council, Göran Johansson, says:

*“Chalmers is important, not only for Gothenburg but for the region and indeed for the whole country. Our starting point with regard to these property deals has been that what Chalmers considers to be good is also good for the municipality and this is something that we support.”*

The Foundation also contributed SEK 65 million to the new Chalmers Student Union Building, which was otherwise financed through donations made via a fundraising campaign directed at alumni, i.e. former Chalmers students. When the collection campaign started the Foundation promised to match the amount raised through the campaign. The result has been the very impressive Student Union Building, which, among other things, has received the prestigious Kasper Sahlin Award.

The routines for foundation investments have changed quite considerably over the years. There was no experience of building up operations from the very bottom. Sören Mannheimer explains:

*“From the beginning we gathered proposals for investments directly from the operational level. This led to a massive catalogue of proposals that proved unmanageable for the*

*Foundation board and which led to some less successful investments. We therefore assigned the University management the task of preparing the matter and prioritising a small number of major strategic areas. This has led, for example, to the very focused investments in the environmental field and biotechnology.“*

The basic principle behind the foundation investments is that they should not be operational grants or be used in areas for which regular financing already exists. The idea is that foundation investments should contribute to promoting the development of Chalmers in a focused way. Investments are therefore limited in terms of time and are made primarily to start up new, interesting areas of activity and to contribute to quality and renewal in the University's operations. The first vice-president of the Foundation board, Volvo director Gunnar L. Johansson, contributed, as did his successors, Sture Allén and Lennart Jeansson, in a crucial way to the successful handling of the financing issues. The principal investments made by the Foundation during the first ten years are:

- Environmental science; an investment aimed at giving Chalmers an international, leading edge position within sustainable social development. Seven professors have been appointed within the environmental programme, which is run in close collaboration with Göteborg University. The international position is being confirmed and developed through Chalmers' active participation in the *Alliance for Global Sustainability* (AGS).
- Bioscience; an investment aimed, in collaboration with Göteborg University, at building up and developing bioscientific research and education,

where the conditions exist for carrying on international frontline research. The investment covers four main areas: bioinformatics, bioimaging, molecular bioengineering and biophysical chemistry.

- Information technology; an investment aimed at reinforcing research and development within the IT field, with a focus on systems, for both the BScEng and MScEng programmes and an investment in the IT University, run in collaboration with Göteborg University.
- Microtechnology; an investment aimed at assuring operations of the very highest standard within micro- and nanotechnology. The investment includes, pending a strategically sustainable financing solution, bridging the shortfall in financing that arose when the state withdrew the annual grant assurance of SEK 38 million to the microtechnology facility MC2.
- Directed investments in project form aimed at developing existing operations or implementing new strategies.
- Interaction investments aimed at bringing the results achieved at the University to the benefit of the society as a whole. Examples are the development of interaction with provincial universities and colleges in western Sweden and an investment in establishing *Universeum* in Gothenburg.

The major downturn on the stock markets at the beginning of the 21st century has also affected the Chalmers Foundation equity. This has of course led to in-depth discussions within the Foundation board and a re-examination of the routines for capital management.

Following an analysis the capital management policy has been modified and new professional procurement has been undertaken

through the management assignments. The investment operations are today handled by a total of nine selected capital managers: four with a Swedish share mandate, three with Swedish interest and bond mandates and two with global share fund mandates. Sören Mannheimer comments:

*“This means that the Foundation has become more cautious and is investing less in shares and more in money market instruments than was the case previously. We have also opted to increase the risk spread. At the same time we are making the necessary adaptation in our level of ambition and creating a more sustainable grant capability.”*

This can be compared with the considerations made prior to the change-over to a foundation in 1994. Chalmers’ former president, Anders Sjöberg:

*“In the discussions about the new organisation that took place at the time we never really spoke about money even if we compared ourselves with other foundations and felt that the yield from the Chalmers Foundation could perhaps be SEK 25 million per year. It was the freedom and potential to be able to control Chalmers’ development that dominated the discussion entirely. We were agreed on the basics: that Chalmers would be an academic institution that would run its operations in the form of a limited company.”*

During the good years the Foundation’s renewal investments could be financed through the yield on its capital. To avoid jeopardising the main investments during the loss-making years of 2001 and 2002, the Foundation financed the investments during this period with non-restricted equity instead of the yield.

Looking back on the first ten years, the foundation capital remained generally intact and the Foundation has been able to support Chalmers’ operations with SEK 2 billion, allocated as follows:

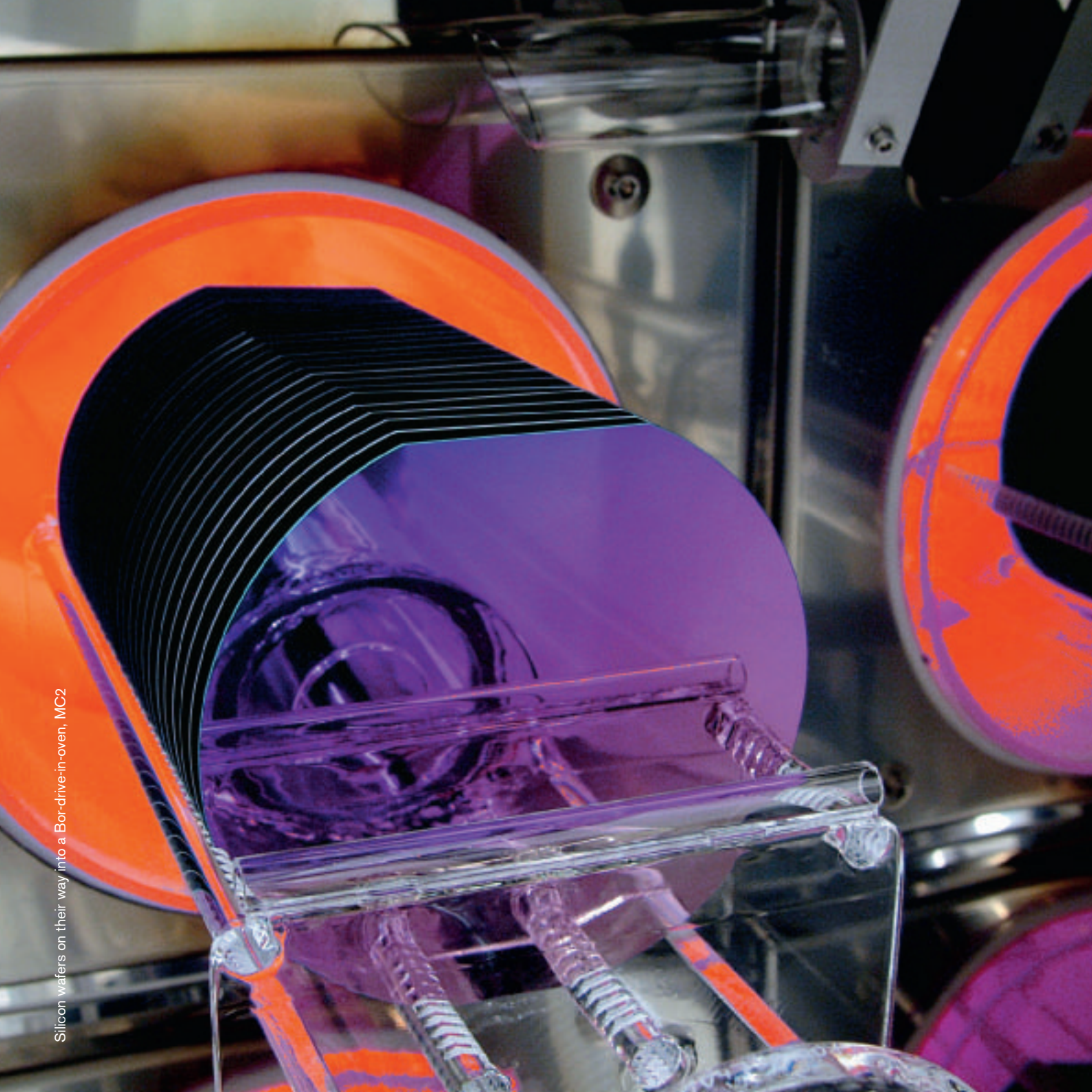
	SEK million
Owner undertakings	575
Renewal investments	1,283
Collaboration task	204
<b>Total</b>	<b>2,062</b>

When asked what the Chalmers Foundation is good for, former Chalmers president (1974-1989) Sven Olving states:

*“Even in my time we thought about the alternative organisational forms for Chalmers and looked, among other things, at how this was handled in the USA. We found that the limited liability arrangement, which Chalmers opted for, would lay the groundwork for a sound organisation. To ensure an independent owner for the limited company the choice of a foundation was both natural and logical. I am glad that the Chalmers Foundation has acquired such a competent board. The fact that it has the financial resources to lubricate the system is not bad either.”*



Silicon wafers on their way into a Bor-drive-in-oven, MC2





# Promoting relations through fundraising

In the USA it is common at centres of higher education to create relationships with the external world and reinforce finances through fundraising, where efforts are directed at companies and individuals who in some way have a link to the seat of learning. It was natural to examine the fundraising model to see if it could be applicable in Sweden and at Chalmers.

The board assigned the task of examining this to a British consulting company, which made an analysis based, among other things, on a number of interviews. Even if in Sweden there is no tradition of private fundraising campaigns in the education world the results of the survey were such that the Foundation board decided that Chalmers should start a fundraising campaign. A name with a strong link to industry was needed to lead the work. The person chosen was former Volvo director Håkan Frisinger, who graduated from Chalmers with a Mechanical Engineering degree in 1951. He also received an honorary doctorate from Chalmers in 1988. After taking some time to think about it he accepted the chairmanship of the fundraising committee.

The target was SEK 240 million and it was a matter of getting the campaign going to attract a large company to contribute with a large sum. With his solid background in the Gothenburg-based Volvo company it was obvious for Håkan Frisinger to begin there. There was also a long tradition of collaboration in different research projects between Volvo and Chalmers and a meeting with the Volvo executive management was arranged. Håkan Frisinger recalls:

*“We presented Chalmers and vice president Lena Torell gave a very good presentation of the doctoral students at the University. After the presentation Sören Gyll, who was Volvo’s president, came straight out and asked what it was all about. I was equally direct in my response: ‘We want SEK 50 million for Chalmers’. And we got it.”*

This made it easier for Håkan Frisinger and the fundraising committee to continue their work. The next piece in the jigsaw was to contact the shipping company Stena. Håkan Frisinger explains:

*“I talked to Sten-Allan Olsson at Stena and he said that the company could finance a professorship for a period of five years. We wanted more and continued working on them. This eventually led to an idea for an innovation centre with the Stena name. The Sten A Olsson Foundation for Research and Culture donated SEK 50 million for the innovation centre and the money was used, among other things, to rebuild Holtermanska, located at the northern part of the Chalmers campus, for this purpose.”*

Other major contributors were Ericsson with SEK 25 million and SKF, which invested more than SEK 10 million in research in the quality field. Otherwise getting companies to invest money in buildings was difficult. There was, however, a need to extend the Student Union Building and to solve the financing a special fundraising campaign was run directed at alumni, i.e. former Chalmers students. The Chalmers Foundation undertook to support



Scanning electron microscopy, Microscopy and Microanalysis

the campaign by matching the donations made by the alumni.

To further reinforce the University's contacts with alumni the position of alumni secretary was set up and different activities to reinforce the link with the old Chalmers students commenced in co-operation with the Chalmers Engineers' Association.

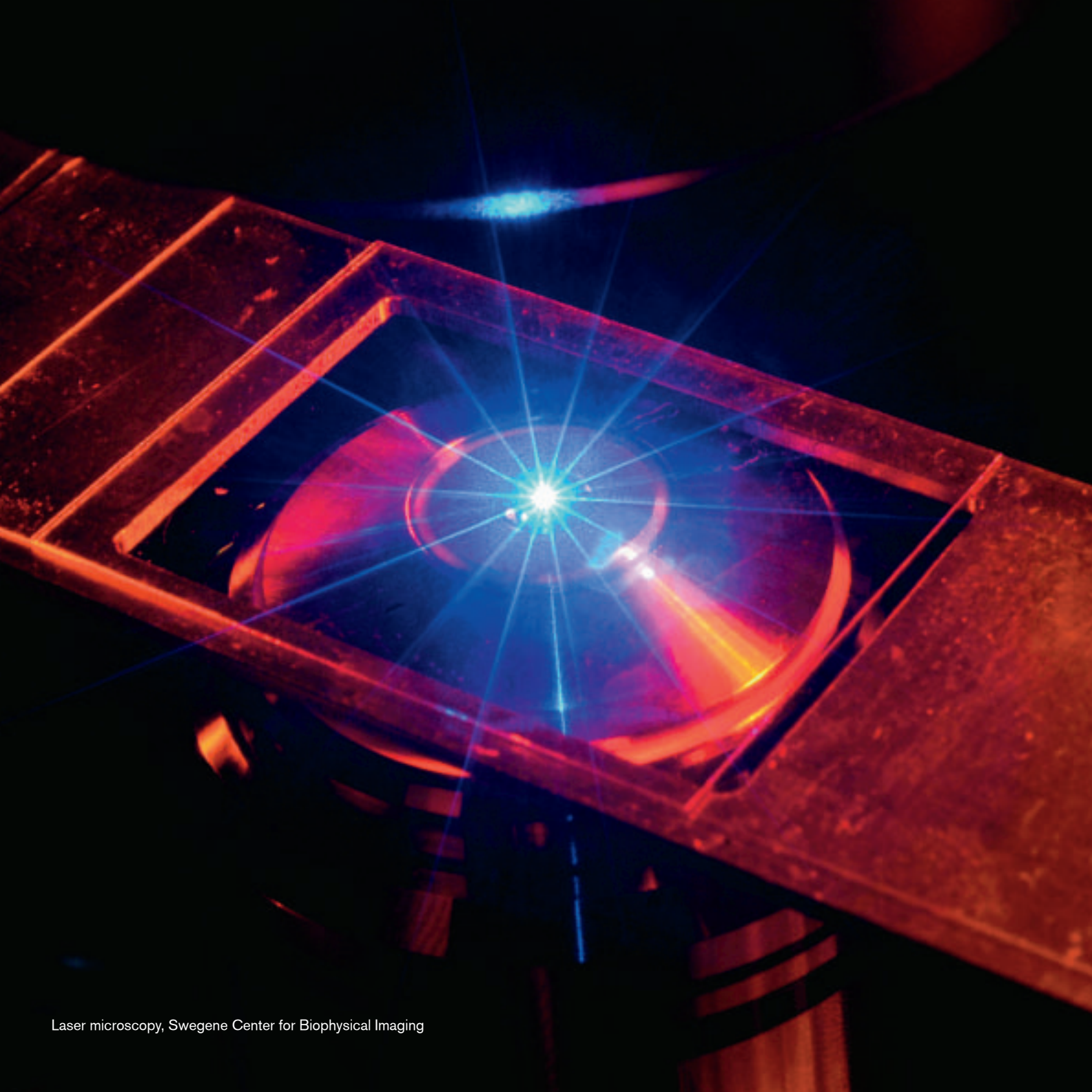
All this meant that Chalmers became more outward-thinking and more visible in industry and society. Håkan Frisinger summarises:

*“Chalmers’ reputation has grown since the University became a foundation. I believe the change to a foundation was an injection, both internally at Chalmers, where the change brought about a new belief in the future, and in industry, where the new ownership situation gave Chalmers a special profile. A fundraising campaign*

*would perhaps not have been impossible as a state university but the fact that Chalmers was free from the state made it easier to explain the purpose of the fundraising campaign and to get companies interested in contributing to the University’s activities.”*

The reason for contributing was thus based on the knowledge that donations or support for research would be genuinely used for the intended purpose and not to cover some state ‘black hole’. Despite this the campaign was not always easy. President Anders Sjöberg, Håkan Frisinger and his colleagues in the fundraising campaign had to work long and hard. However, the campaign was extremely successful. The original target of SEK 240 million was increased during the course of the work to SEK 300 million and the final figure came to SEK 340 million.





Laser microscopy, Swegene Center for Biophysical Imaging



# Greater freedom in collaboration

*“It is unusual that the principals from two separate universities put forward the same message as Chalmers president Jan-Eric Sundgren and I did in Brussels. It is both surprising and impressive. And it lends considerable strength to our debate.”*

The words of Bo Samuelsson, vice-chancellor of Göteborg University (GU) from 1997 to 2003. He speaks warmly about the excellent co-operation between GU and Chalmers, which goes back a long way. Many departments have been built up jointly, ranging from classical areas such as physics, chemistry and mathematics, to newer disciplines, such as the environment, computers and IT.

Co-operation is sometimes so close that there is confusion about what is GU and what is Chalmers, both for people on the outside and those working at the departments. Bo Samuelsson:

*“Sometimes it feels as if the GU Faculty of Science is overshadowed by the very strong Chalmers brand name. But the important thing about collaboration, which has come a long way during my years as vice-chancellor, is that together we can reinforce Gothenburg better than if we were to act individually.”*

He is supported in his opinion by Jan-Eric Sundgren:

*“Our good relationship with Göteborg University is important as it creates greater critical mass. This is necessary now that we are competing in the international arena.”*

The two meet regularly for joint discussions and they have agreed to keep each other informed about their work. It has even been the case that they have taken each other's place or borrowed each other's speeches.

A person who has seen how teamwork between GU and Chalmers has intensified over the years is chairman of Gothenburg City Council, Göran Johansson:

*“Collaboration between Chalmers and Göteborg University is important for Gothenburg. I feel that we have acquired a more open attitude and that today we are working with less prejudice when building up networks – there is a lot more cross-border co-operation than was the case twenty years ago.”*

The Swedish ship-building crisis and the more general shift in Gothenburg from an industrial city to a centre of knowledge certainly played a major role in this change in attitude. GU and Chalmers have had a key part to play in this. The fact that Gothenburg is the second city in Sweden also means that it has often had to fight that little bit extra with slightly fewer resources. Bo Samuelsson:

*“There is a strong collaborative culture in Gothenburg and we can see several examples at the present time where this has produced results, such as the establishment of the science centre Universeum and the development of Lindholmen, where the academic world, politicians, the municipal authority and industry have worked excellently together to create a cluster for logistics, security and telematics.”*

As regards Universeum and Lindholmen the Chalmers Foundation has contributed to the investment in a way that would have been impossible as a state university.

Bo Samuelsson also points out Chalmers' role in the west of Sweden university collaboration, which he was personally involved in starting up and of which he was the first chairman. The Chalmers Foundation went in for two years with a special investment of SEK 60 million, which reinforced the alliance. When his successor as chairman was to be appointed they wanted a person who was impartial and the choice was former Chalmers president Anders Sjöberg. Bo Samuelsson:

*"I feel that Chalmers has become more open and more of a team player, in particular through the west of Sweden university collaboration project. And Chalmers is also exciting. I have always felt welcome and I have been able to test new ideas there. But above all it is the personal chemistry that is important in all forms of co-operation. Both Anders Sjöberg and Jan-Eric Sundgren have played an important role in this."*

The investment in the environmental field made by Chalmers and the founding of the Göteborg Centre for Environment and Sustainability together with Göteborg University have meant that Gothenburg today has 40 per cent of the country's work within the sustainability field (environmental research focusing on sustainable development in society). It is therefore no coincidence that the conference *Learning to Change our World* in May 2004 was held in Gothenburg with some 350 selected delegates from more than 60 countries coming together to discuss education within sustainable development. The person behind the initiative was Prime Minister Göran Persson and the conference

was organised by the government committee for education for sustainable development with GU and Chalmers as co-hosts.

A new and important collaborative project between GU and Chalmers in recent years is the build-up of the IT University in Gothenburg, which is aimed at bringing about a forceful totality and meeting point for all IT-focused research and education. The operations are an experimental platform for interaction between the academic world, industry and society and are mainly at Lindholmen Science Park. The course programmes have a unique level of application for the country and have come into being with financial support from, among others, the Chalmers Foundation. Bo Samuelsson:

*"We are a little jealous of the freedom that Chalmers enjoys. The IT University could have been a joint company but the Higher Education Ordinance prevents GU from setting up companies. It is time to renew the Higher Education Ordinance and new opportunities could perhaps be opened up in the government bill on supplements to public authority legislation put forward by Minister for Education and Research Minister, Thomas Östros. If it goes through the bill would allow experimental operations with a subsequent evaluation."*

There are also examples of international partnership. Jan-Eric Sundgren:

*"The newly formed Institute of Applied Mathematics within Industry, set up by Chalmers in 2001 together with the highly reputable German Fraunhofer Institute, has been easier to implement thanks to Chalmers being a foundation university."*

Chalmers' interaction with industry also goes

back many years and is quite extensive. There are many levels, from degree projects and theses and technical advice and information for companies large and small through to research collaboration, innovation activities and science parks. Financing often takes place through funds from industry but also through public funding, EU grants and various foundations for collaboration projects or industrially oriented scientific conferences. The Chalmers Foundation has over the past ten years also contributed with special investments.

One example of effective co-operation between the University and industry is the national competence centres, which are largely financed by NUTEK and the companies that are involved. These centres have proved that it is possible to combine high scientific quality with relevance to industry.

Former chairman of the Foundation, Sören Mannheimer, summarises the external collaboration:

*“I feel that Chalmers today has a solid position within the Gothenburg region. But Chalmers is more than that – it is a resource for the whole of Sweden.”*

Göran Johansson goes even further.

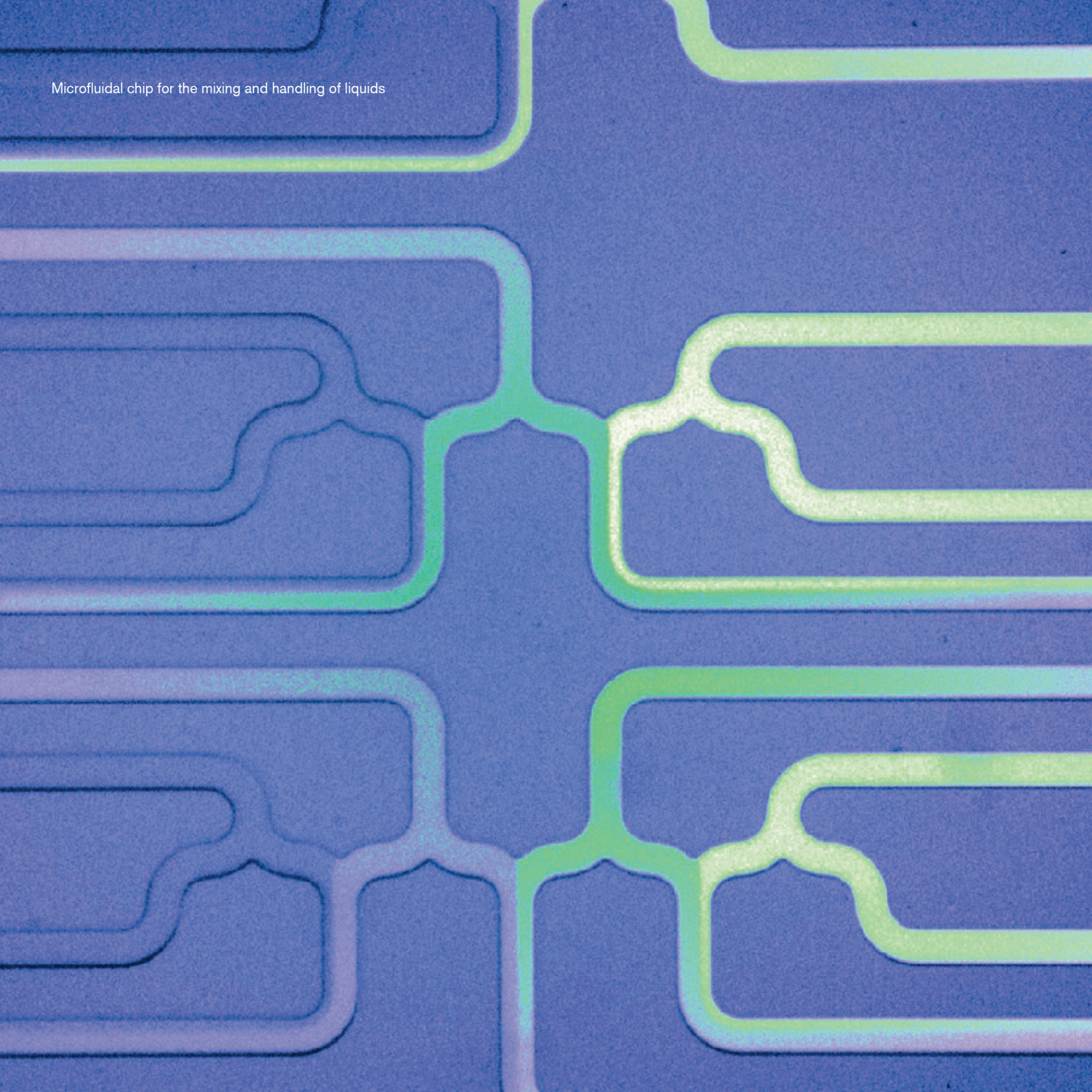
*“Competition today is global. Chalmers not only competes with the Royal Institute of Technology in Stockholm but also with many other centres of learning. Now we are looking at the USA and Asia and Chalmers has begun working with several universities there. I believe that Chalmers has a crucial role to play in the future competitiveness of Gothenburg, where openness, cross-border collaboration and thinking along new lines are the key.”*

*Examples of foreign universities with which Chalmers has close collaboration:*

- California Institute of Technology, USA
- Ecole Polytechnique, France
- ETH Zürich, Switzerland
- Fudan University, China
- Georgia Institute of Technology, USA
- Hong Kong University of Science and Technology, Singapore
- Imperial College, England
- Massachusetts Institute of Technology, USA
- Nanyang Technological University, Singapore
- National Chiao Tung University, Taiwan
- National University of Singapore, Singapore
- Politecnico di Milano, Italy
- RWTH Aachen, Germany
- Shanghai University, China
- Tech de Monterrey, Mexico
- Tokyo Institute of Technology, Japan
- TU Delft, the Netherlands
- Università Commerciale Luigi Bocconi, Italy
- Universitat Politècnica de Catalunya, Spain
- University of California at Berkeley, USA
- University of Michigan, USA
- University of Minnesota, USA
- University of New South Wales, Australia
- University of Newcastle, Australia
- University of Northumbria, England
- University of Strathclyde, Scotland
- University of Tokyo, Japan
- University of Washington, USA



Microfluidical chip for the mixing and handling of liquids





# Directed recruitment

As a foundation university Chalmers has greater freedom in the way it recruits and is not impeded by the former appeal system.

Recruitment today can take place more quickly and can be more directed, thus facilitating the focus on selected research areas. One example of this is the recruitment of Owe Orwar, who became Professor of Biophysical Chemistry in September 2000.

Owe Orwar took a PhD at Göteborg University in 1994 and was then a postdoc at Stanford University until 1996, when he secured a position as assistant professor at the Natural Science Research Council. The same year he was appointed associate professor at Göteborg University and the year after he was appointed assistant professor, financed by the Swedish Research Council. He comments:

*“There were also external grants, among other things, from the Foundation for Strategic Research (SSF) and the American National Institutes of Health. It wasn’t much money but it gave it the seal of quality. I also received a great deal of support from Göteborg University, which meant that we could be a relatively large research group. In terms of research, things went well and I attracted a great deal of attention.”*

He received several awards and research grants: In 1997 he received the *Junior Individual Grant* from SSF and the *Hoffman-LaRoche Young Investigator Award*. In 2000 he was made a *Research Fellow* by the Royal Swedish Academy of Sciences and 2001 he received the *INGVAR Prize* from SSF.

His work also attracted attention at Chalmers, which offered him a professorship. Owe Orwar states:

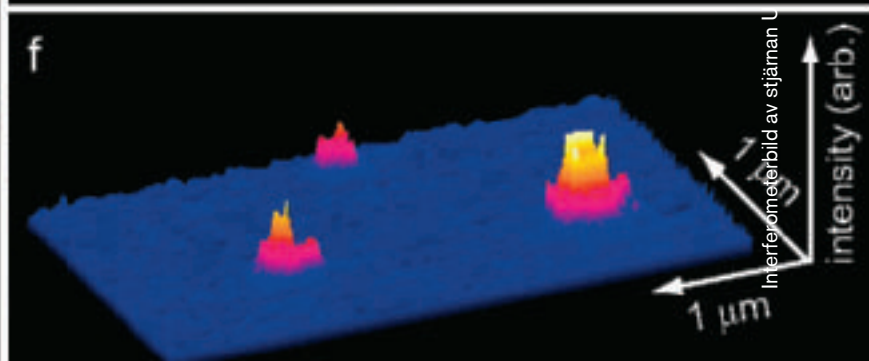
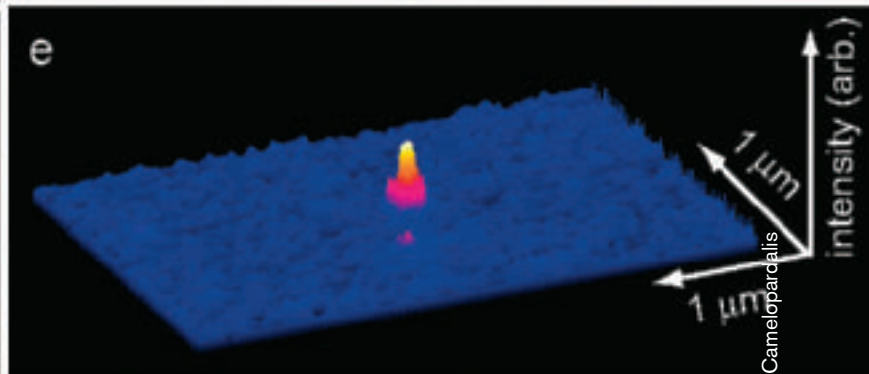
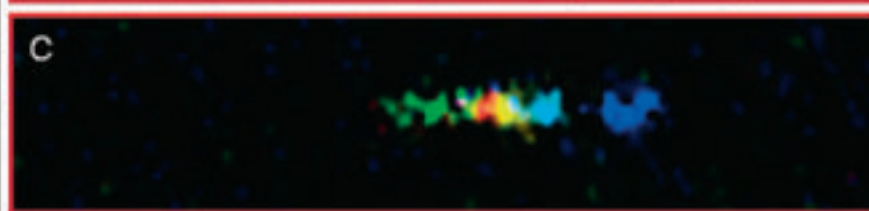
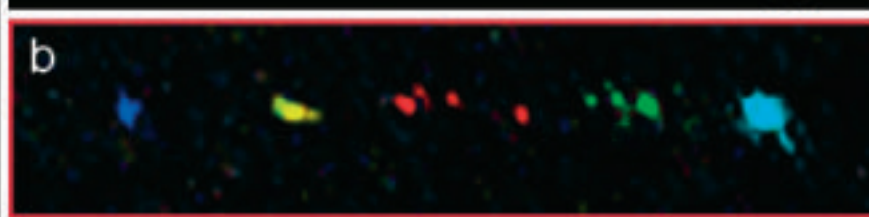
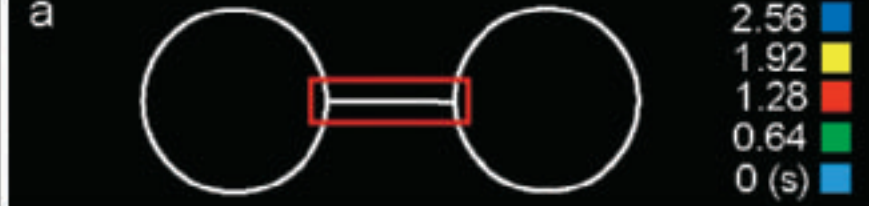
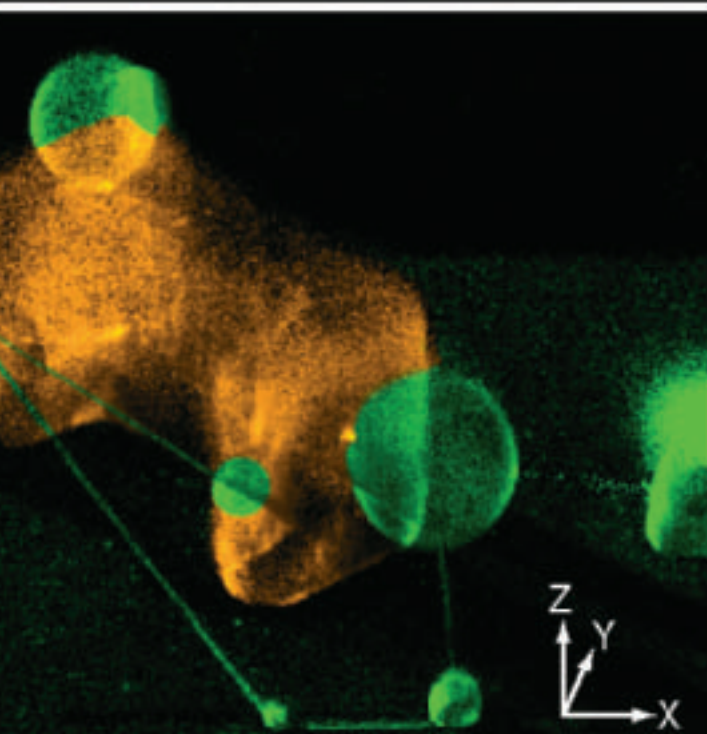
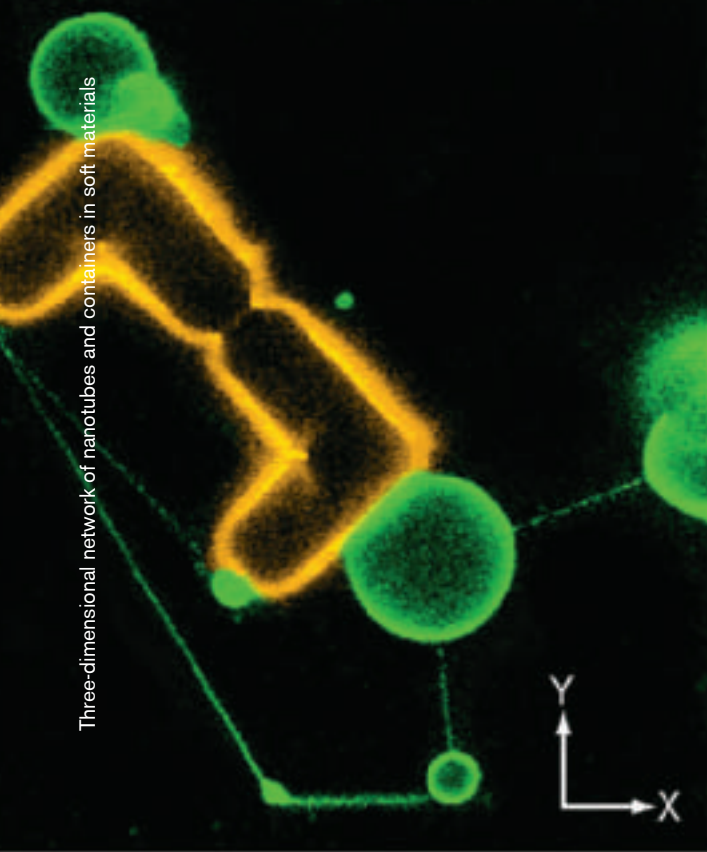
*“I received several offers but decided at an early stage on Chalmers. Through the Foundation Chalmers could offer a package that meant a special focus. Chalmers had the best of the Swedish offers I received. I probably would have chosen Chalmers anyway because of the strong infrastructure within my research area where, among other things, MC2 is of great interest. Chalmers also has very prominent research groups within physics and chemistry, which are important for my research. I can mention names such as Bengt Nordén, Björn Åkerman, Bo Albinsson, Zoran Konkoli, Bengt Kasemo, Johan Bergenholtz and Julie Gold. In my particular area I feel that the environment at Chalmers is one of the best in the world.”*

Does he notice anything of the Chalmers freedom as a foundation university? Owe Orwar:

*“I believe that decisions at Chalmers are quicker and smoother but I don’t really know. I feel that Chalmers has a different dynamism and greater efficiency than a lot of what I have seen previously. However, I believe that the organisation for recruitment could be improved. My research group also has external funding for certain strategic areas, so I am optimistic about the future.”*

Owe Orwar is a little of a jack of all trades. First he looked at the educational organisation

Three-dimensional network of nanotubes and containers in soft materials



and quickly ensured that he linked up skilled doctoral students. Ten students have taken their PhD in four years. He has also been involved in starting a couple of companies that are working with new pharmaceuticals based on his research results:

- Collectricon AB with approximately 40 employees and eight of the world's ten largest pharmaceutical companies as customers.
- Nanoxis AB, which is a newly started bio-nanotechnology company.

The work involves new micro-nanotechnology, which improves efficiency and creates new potential within pharmaceutical development. He states:

*"I see an important role for me in creating new products and in protecting them through patents. If we compare with the USA, for example, patent income is much more important for universities there. We ought to be able to do more at Chalmers so that the University can also secure revenue from successful research."*

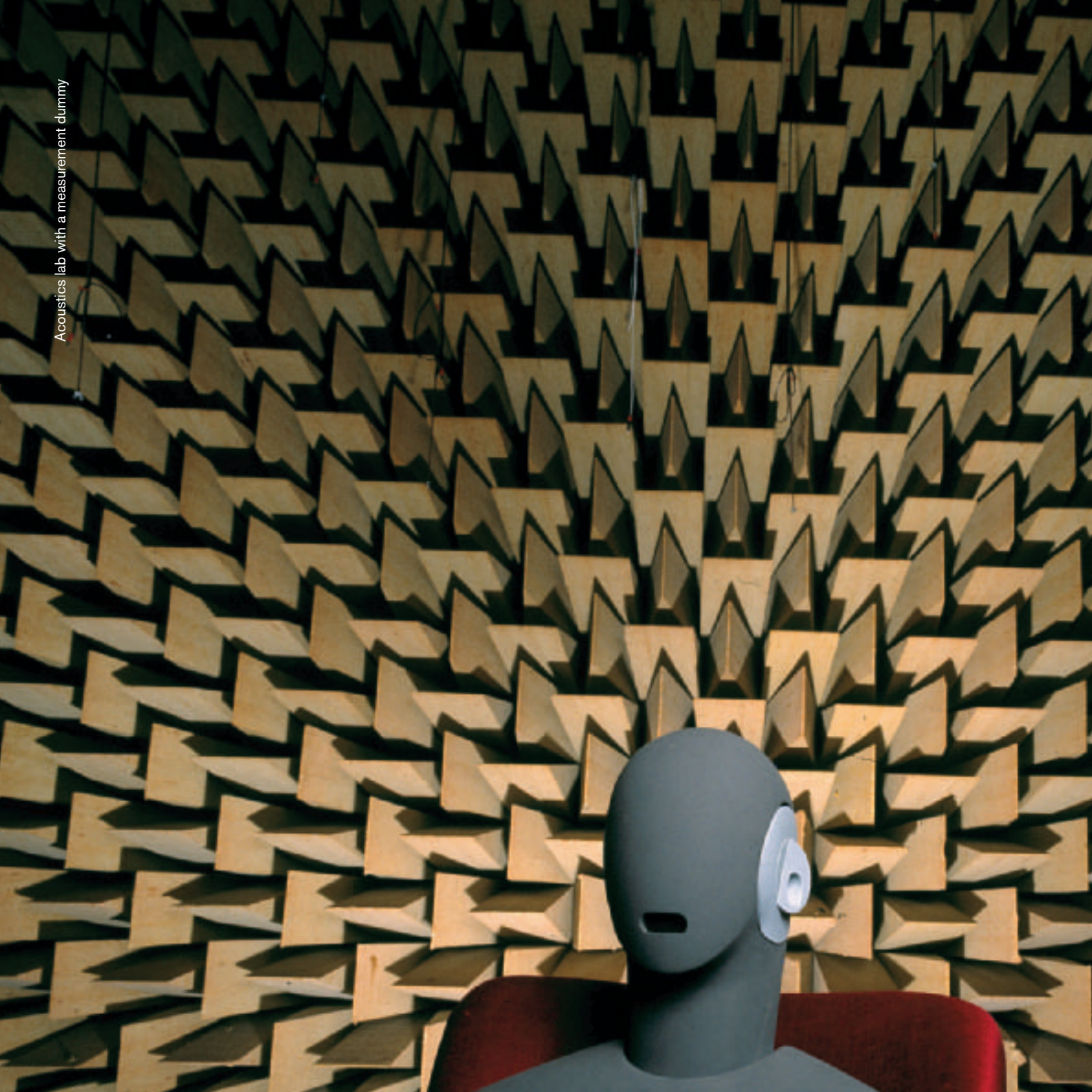
Owe Orwar continues to be successful: In 2003 he received the *Pittsburgh Conference Achievement Award* for his outstanding results in the creation of analysis systems on a nanoscale and their application to the scientific problems within bioanalytical and biophysical

chemistry. In 2003 he received the *Rothschild-Magent Prize* from the Curie Institute in Paris and in 2004 he received the *Göran Gustafsson Prize* in chemistry and the *Chemist Association Norblad-Ekstrand Medal* for his research within systems with individual molecules as building blocks.

About the future he says:

*"Things are looking very positive. I believe that a great deal will happen in a couple of years with new advances and synergies within the technology and biology fields. The development of new, smart instruments with a resolution of a number of nanometres will increase our understanding of complex biological processes on the detail level, which was never possible previously. This will in turn, for example, lead to the development of better pharmaceuticals and new, smart implants. Biomimetic materials and nanotechnology will have an important role to play in the development of advanced day-to-day technology. Computers based on biological and molecular components will be able to carry out complex tasks within, for example, patterns and image analysis. We will have instruments that can build and analyse one molecule at a time. I believe that Gothenburg will also become a centre for the growth of nanotechnology companies, particularly companies developing products based on advanced nanobiotechnology."*





# Creating the companies of the future

One of the areas Chalmers has worked on developing is what is somewhat cryptically known as the “third task”. The first two tasks are education and research while the third refers to the contribution by the University to ensuring that its results benefit society. This naturally involves the dissemination of pure information about research results although the focus has been directed more and more at developing ways in which research results can be commercialised and become a breeding ground for what could be the major companies of the future, creating employment and income for the country.

On page 25 there is a description of how Sten A Olsson, as part of the Chalmers Foundation fundraising campaign, invested SEK 50 million in what was to become the Stena Innovation Centre at Chalmers. Behind the donation is a strong feeling for Gothenburg’s long tradition as a commercial centre. Prerequisites for trade are new ideas and new products. Stena’s decision to support Chalmers is founded on this insight and this is the reason for the contribution to the development of Chalmers innovation work.

One of those who took the initiative and worked to ensure that Sten A Olsson’s donation became a reality was Sören Sjölander, Professor of Innovation Engineering:

*“Chalmers had been interested for a long time in utilising results from the University industrially. It really began when the first president of Chalmers, Carl Palmstedt, who also had a history as a businessman in the*

*chemical industry and a burning interest in science, introduced this area of science and coupled it with the practical courses that Chalmers ran at the time. A major step in structuring this area was taken in 1983 when Torkel Wallmark, who became Professor of Electron Physics at Chalmers twenty years previously, received a personal professorship in innovation technology. He made a major pioneering contribution and succeeded in attracting a great deal of attention to the growth companies at Chalmers.”*

Since the 1990s work has developed through several initiatives aimed at building up a comprehensive innovation system:

- Financing of new companies takes place at different stages, partly through collaboration with different external players, partly through Chalmers by the wholly owned subsidiary Chalmersinvest investing in new companies that base their operations on results from the University’s research. In the middle of the 1990s Chalmers together with Volvo, Bure and others, founded *InnovationsKapital*, which has grown into one of Sweden’s leading venture capital companies, investing in high-tech enterprises.
- Chalmers Innovation is today a so-called company incubator and runs operations both at the Stena Center and Lindholmen Science Park. Since the beginning in 1999 53 companies and projects have worked within the framework of Chalmers Innovation and have attracted SEK 646 million in private venture capital and

SEK 67 million in public funding. These development companies have an annual turnover of SEK 110 million, 76 patents and over 230 employees.

- In 1997, the Chalmers School of Entrepreneurship was set up – a final-year programme where the students have the opportunity to work on commercialising an idea and running real innovation projects with the aim of setting up a company at the end of the year. The 119 students who have attended the programme since the beginning have had primary responsibility for starting up 23 companies, with almost 100 employees and an annual turnover in 2003 of SEK 56 million.
- Within both Chalmers Innovation and the School of Entrepreneurship there are pre-incubators, which work with business development at very early stages.
- Chalmers Industriteknik (CIT) is a foundation that works at the interface between Chalmers and companies seeking to utilise the leading edge expertise at the University.

Former Chalmers president Anders Sjöberg:

*“A prerequisite for a good innovation system is capital. This is where Chalmers has been in a better position following the switch to becoming a foundation university.”*

Innovative power is an important aspect that is highlighted in the Chalmers vision and strategy document. President Jan-Eric Sundgren comments in the University’s annual report:

*“Success in both the Venture Cup and Innovation Cup show in concrete terms*

*that the concept Chalmers is following is correct.”*

Former vice-chancellor of Göteborg University, Bo Samuelsson, makes a comparison with American universities:

*“There they have much more resources, perhaps 5-10 times more than here. They also have a different organisation with a special focus on research universities and education universities. This is a challenge for us in Europe, where we have old, rigid systems and lack the formation of clusters that can create dynamism. I don’t mean that we should direct research only at what is patentable, but we must patent and develop what can be patented. Chalmers has been a forerunner in this area with courses in entrepreneurship and an established innovation system.”*

The innovation system is contributing to Chalmers keeping pace much longer in the development process for new research results and it offers the opportunity for increased interaction with industry.

Sören Sjölander:

*“Even if much has happened within innovation at Chalmers since the University became a foundation it should be stated that a great deal was already on the go. But I believe that it would have been more difficult to induce Stena to make a major donation if Chalmers had not been a foundation. The inception of the Stena Center has been an injection and created a platform for innovative activities and growth companies at Chalmers. Now it is up to Chalmers to utilise fully on being a foundation university.”*



# Statement from the President

When I accepted the position of President of Chalmers one of the reasons was that Chalmers was a foundation university. This was something new. Something I felt was exciting. A challenge that brought with it new possibilities.

When I look back I can feel that initially things were a little sluggish. But that's hardly surprising as major changes were taking place for which there were no routines.

Today I can see that it is an advantage to run operations that have a focused owner that cares. Over the years the Foundation has made major investments to reinforce the work at Chalmers. One example is the investment in the environmental field, where the Foundation has invested SEK 100 million over a 7-8 year period in the creation of new, interesting research and education for a sustainable society. The investment has presupposed non-restricted operating capital and it would not have been as simple to implement as rapidly as we did if Chalmers had been a state university. The investment in the environmental field is today also well known internationally and it has become one of our distinct profile areas.

It is heartening that Chalmers as a foundation university has a strong base – naturally in Gothenburg and western Götaland but also in the community and in industry generally. I feel that the foundation arrangement has contributed to reinforcing Chalmers' position. Chalmers today has a

good reputation and the bodies that we co-operate with are positive to the simple, direct rules the foundation arrangement has made possible. There are several examples where

collaboration has been facilitated, such as the IT University together with Göteborg University and the joint institute for industrial mathematics with the German Fraunhofer Institute. Today I am also convinced that the strong, rapid development at Lindholmen would have been impossible if Chalmers had remained a state university. Per Unckel was the Minister for Education when the foundation reform was launched. In

an interview he was asked whether Chalmers had succeeded in making the transition to a foundation university. He said:

*"Chalmers has done more than we expected. My impression is that a change in attitude has taken place there; from that of authority to one of a free entrepreneur."*

This is something that we at Chalmers have every reason to be proud of. Using this as a starting point let us continue to work on the extensive change process that we have before us in order to make Chalmers into an even more prominent university of technology.

Avancez!

*Jan-Eric Sundgren*

President





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