STRÖMSTAD ACADEMY
Nordic institute for advanced studies

News Forum Strömstad Interdisciplinary Academy

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Editor´s corner

Anders Gustavsson

Vice-**Chancellor and Information System Scientist Per Flensburg** and **Educator and Chairman of the Board Åsa Morberg** inform about news in Strömstad Academy. Flensburg discusses themes for upcoming socially relevant projects where the question of stupidity can be an input.

Industrial economist Per Staffan Boström presents a proposal for a new research project and seeks collaboration with other members of Strömstad Academy.

Business economist Rune Wigblad writes about the next generation of more efficient solar cells called perovskite.

I want to urge a previous call for all members to verify and complete their personal information on the Academy website. Also try to recruit new members to the Academy, not least young scholars. Please, send suggestions to **Vice-Chancellor Per Flensburg** per.flensburg@stromstadakademi.se

I wish new contributions to the December issue of the Newsletter sent to my e-mail address with deadline on 27 December 2024: anders.gustavsson@ikos.uio.no. Send short articles, opinion articles and/or reviews of new scientific literature. Swedish contributions should have an English translation. Texts should be in Word- or Open Office format!

Please, also send contributions to the Academy´s publication series Acta Academia Strömstadiensis, AAS, to peter@wahrborg.se, the video series SAV to: gudmundbergqvist@hotmail.com and the Reprint Series and the Free Series to: per.flensburg@stromstadakademi.-se.

Redaktör: Anders Gustavsson
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Monthly report from Chairman and Vice-Chancellor

November's report by Per Flensburg and Åsa Morberg

Now we have come to the end of the month of November and we are soon in December, the month of Christmas. It is the eleventh month of the Gregorian calendar and November has 30 days. The name comes from Latin and actually means the ninth month. November was called the winter month. Fall has taken a firm grip on southern Sweden, while winter has taken over in the north. As long as the snow lags, it feels grey, very grey! But at the end of the month, the snow came, in northern Sweden in huge quantities as well. So now Christmas is approaching...

In Strömstad Academy, preparations for the annual meeting are coming together.

Our annual meeting is much earlier this year. The annual meeting is on March 17, 2025. We have sent out a checklist to the Academy with information about time for preparations. All members must know the timetable for the preparations.

Motions must be submitted to the Board no later than eight weeks before the annual meeting. We will have a board meeting four weeks before the annual meeting to decide on motions received. It will be exciting with the motions from all innovative members. We agreed to ask Sven Moosberg to be the meeting Chairman at the annual meeting. It has worked so well each year. Hope he will agree to help out this time too.

The activity report and the business plan must be prepared for the annual meeting. Then we have to try to figure out how to vote, in a legally safe way, at a digital meeting. One way could be via our discussion forum where you can have polls.

Our Nominating Committee

Our Nominating Committee with Arne Fagerström, Maria Björkroth and Gudmund Bergqvist, will receive an invitation to the next board meeting to present their working routines. Now we have new by-laws and the members of the Board are elected for one and two years respectively. This means that the Board members all resign at the same time, but half of them are re-elected and half remain. Safer planning and better for the business.

There are many things that we have decided on: new statute with new mandate periods, new ethics policy and a new Ethics Committee, new time for the annual meeting. We have got a new website and new IT policy, and an archiving policy is underway. This has taken time, but now all the necessary changes have been made.

Development issues necessary

Development issues are now necessary. John Fletcher has put together a memo on development issues for the Academy and he will provide a written summary in the present Newsletter/forum. It is naturally the case that the responsibility for development is shared, it is in part about academic development, and partly about development for the Board and the Board's work. We have long said that the most important development issue is to recruit new members. But what do our current members do?? Not much is the simple answer. We are a group of about 15 who are active and then there is another group of 85 that does nothing. This, dear friends, is not an Academy, it is a social club! A club that meets once a year and in between writes e-mails to each other! In an Academy, things should be happening, you should have discussions, you should criticize (respectfully and constructively) and you should come up with ideas. For this to happen, we need to communicate! We have said it

earlier and Bodil Frisdal has meritoriously pestered us that we have to communicate, we have to listen to each other, we can't just talk about statutes, minutes, calendar, meeting order, job descriptions, etc. We also have to talk about Science, about Research, about Life, Society and Existence. But we cannot use the Board's mailing list for this! We must give everyone a chance to participate in these important discussions. And we have a discussion forum, which Per put a lot of effort into putting together, writing instructions, recording demos and even posting users and creating an overall structure! But no, no one takes the time to go through the description, log in and bother to write something! Not even Bodil, who nags so much that everyone must make themselves heard and be listened to! The image of Strömstad Academy members as active, eager and responsible people is easily replaced by an image of lethargic, slack, lazy, lazy and indifferent stochastic variables at the outer edge of the system! Harsh words, admittedly, and there are members that this does not fit. But we're apparently a social association, so we'll have to settle for that.

If we look at the national level, it is different. A full 29% of Sweden's population is a member of an association, if you count people aged 16 and over. You can read this if you study living conditions studies that Statistics Norway publishes regularly. There are studies that show that Swedes' involvement in associations is greater than ever. After all, we have the Pareto distribution, which we wrote about before: 20% of the members account for 80% of the business. It seems to be a general rule, but it does not seem to apply to Strömstad Academy. Here, 20% accounts for 100% of the activity! Can we increase the percentage of activists, one might wonder? And it might actually be possible...

Theme groups are underway

This is about thematic groups. It gives everyone an opportunity to do whatever they want, possibly except for nothing. You form a group, and SA offers a certain form of infrastructure. It is new way of thinking and an innovation for us at Strömstad Academy. It is a proposal from Per Flensburg that has been received very well. There is already one thematic group: Technology evaluation which was initiated by Rune and where Carl is the convener. Since previously, we have a group led by Marylou and Lennart Wetterberg. Lasse Broman and Dag Lindgen would like to deal with the population issue in connection with the climate threat. We should be able to get someone on energy supply and we should have someone on medicine. Per must contact potential leaders. In addition, Anders has proposed an anthology "Faith and knowledge" and we think we should include it as a theme. Innovative and fun! It will be exciting to see what theme groups are formed and what it leads to? In discussion forums, different ideas about theme groups are gradually added. They are presented there, so if you want to know something, just go in there. Among other things, Per has a post with the title: Millenium, Trump, SD, troll factories and other things can be interesting.

Science Festival 2025

We are happy to be able to say that we are asking our festival officials to arrange something special for our international local chapter. We have a total of 29 individuals in this chapter for which Angelika Basch is the coordinator/convenor. A special letter will be issued from the Vice-Chancellor about the special arrangement for the international members. Otherwise, we have asked the same organizational group as last year if they can take on the job in June 2025 too. We have also a collaboration with Strömstad opera, which will give Strauss the Läderlappen, but with the addition: ”Det Crusellska kalaset”. It will be fun to see what comes out of it.

New writing series

We have launched a new writing series: Reviews. Some of our members are diligent in writing reviews and we thought we would collect/store them in one place in the future. The current page is https://www.stromstadakademi.org/publikationer-2/recensioner/ and it is also available to the public. To make it easier for me and Marylou, who will oversee the site, you MUST use a template found here. It can also be found on the review page. If we do not receive the contributions in this template, they will not be accepted! We have no secretary for this and need to be helped out with the absolutely necessary administration.

Per Flensburg: Themes, Millenium, Nuclear Power and Conspiracies

About themes, Millenium, nuclear power and conspiracies

Per Flensburg, Professor of Informatics

As you know, I live in Borås and as you may have heard on radio and TV, they tried to introduce a new journal system, Millenium, in the Sjuhäradsbygden. It turned out not to work technically, it turned out to be completely unsuitable for Swedish healthcare and those who would use the system did not receive enough training. Borås newspaper published comments from both the general public and healthcare professionals. It turned out that they had committed almost every possible mistake that can be made when introducing a computer system. They had a project group with healthcare staff, but it was quickly overwhelmed by administrators and technicians. The management held a press conference shortly after the introduction and declared that the introduction had gone better than expected. Two days later, the introduction had to be paused. The whole thing has cost the taxpayers 5.5 billion! The healthcare staff have always claimed that Millenium cannot be used and the project management has just as eagerly claimed that the system should reduce administration time and increase patient safety. But in the x-ray part essential words disappear, if the doctor dictated "no bleeding" the system removed "no" and wrote "bleeding". In the old system you had to click 12 times to admit a patient, in Millenium you had to click 50 times. It was so unmanageable that several clinics and health centers switched to paper and pencil. The question I ask myself is in pure Swedish: How in the world could you make so many and such crazy decisions?

Our latest visiting professor, Tomas Kåberg, published an article in the AAS series, AAS-78, in which he discusses why Swedes believe that nuclear power is economically reasonable. It turns out that the calculations come from an unnamed consultant whose numbers are pretty much completely out of thin air. They are about half of the real costs. But for some strange reason, the government has bought this, even though all the accumulated experience of nuclear reactor construction shows costs around SEK 1.50 per kWh for nuclear power production. For wind power and solar electricity, the cost is 10-50 öre per kWh. My question now is: Why does Sweden's government believe in these happy calculations instead of looking at the real costs? How can you make such crazy decisions?

Further examples are all the conspiracy theories we hear about: Trump claims that immigrants in the United States eat dogs and cats, in the 2020 election, many people believed that Hilary Clinton ate barbecued toddlers in the basement of a pizzeria that, by the way, had no basement, in the US 40% of the people learn to believe that the world was created 6,000 years ago, etc. etc. How can one believe such blatant lies?

Then we have the climate threat, where the effects of the increased temperature begin to show in the form of heat, drought, violent hurricanes and torrential downpours. Neverthe-

less, we continue to emit masses of carbon dioxide and Sweden's government increases emissions just to satisfy certain populist parties. Are politicians really as stupid as they seem?

Speaking of stupidity: On science Saturday 7 December in Falun, Stella Cizinsky, cardiologist and chief physician at the University Hospital in Örebro, will talk about "combating stupidity". She has written a book about this together with Mats Alvesson in Lund. They give several concrete examples. One such example concerns the expansion of bureaucracy in healthcare, where almost two out of three new hires in the Stockholm Region since 2008 have been an administrator or manager. I want to remember that a number of years ago, the health care in the VG region received quite a few millions to hire more healthcare workers. There were, if I remember correctly, 145 administrators and one (1) nurse. Cizinsky and Alvesson call this functional stupidity – a concept that describes how stupidity fulfills a function that is socially accepted and institutionalized – where everyone chooses to stick to the prescribed sphere of thought, follow the regulations and their own job description. Questioning what is reasonable and fruitful is refrained from.

It boils down, as far as I can tell, to decision making. How to make decisions is something that every economics student learned from day 1 of their education. It is called rational decision-making and consists of the following steps:

1. Defines the problem
2. Ranks the alternatives and their consequences
3. Selects the option that best suits the organization's goals
4. Implements the selected option
5. Checks the final result

If you think about it, you realize that this is far from rational. It is based on perceptions, interpretations and contexts in which the problems are described and the alternatives formulated. But why are such crazy decisions made? Why have people stopped thinking? I have had similar thoughts before, on Tvärtänkt, and there I came to the conclusion that the search algorithms are to blame for the world's misery.

I think this could be the subject of studies within our Academy. We have all experienced stupidity up close, we have probably also been stupid ourselves. But why? Do we not realize the stupidity? Do we just accept it? How are the people who make these incredibly stupid decisions created? Could it perhaps be connected to power and ditto abuse? Is it about money? Purely a kind of bribe? I think we could gather around these questions as a starter for a theme and publish something, a book, some articles, some videos, organize a conference, yes, the possibilities are many. In addition, the whole thing can be connected to Anders' theme of faith and knowledge. Do the decision makers really know that the facts they are making their decisions on are correct or do they just believe? I think we can do a lot of this. Do you stand up?

Per Staffan Boström: New Research Proposal

Research Proposal: Exploring the Dynamism of Innovation Capital: Functions, Challenges, and Learning

Per Staffan Boström

A very actual, topical issue is how a company's management assesses the future and decides when the conditions for long-term sustainable growth change.

In my previous research [1] based on extensive empirical data, one conclusion is that it is largely the organization's overall assessment of how markets can be expected to react to the company's potential internal, resource growth or decline, that shape managements strategic decisions, and with effect on the company's capital structure.

In an increasingly knowledge-efficient market, expectations are placed on companies' ability to innovate, i.e. the ability to translate knowledge into innovative solutions in real projects. We can talk here about a company's "potential innovation capital". This company's "innovation capital" is put to the test when market conditions, including through so-called external shocks, change.

This research project aims to explore present research findings in an extended context. Managements decisions and actions in a few actual innovative projects is studied from a theoretical perspective and the "new" theoretical framework [2] [3]the "integrated model" based on the European Excellence Model (EFQM) and related models. A further aim is to reach a theoretical understanding of the dynamics in how management's "individual vs collective" expectations form legitimacy and legitimate behavior. One further argument for this research is to initiate this topic, with emphasis in system for resource-based managements (RBM), in academic learning and future research.

The research question (proposed)

What decision criteria underlies top management's decision to alter strategies in order to reach the goal of sustainable growth?

Implementing the empirical studies.

This initial research is both conceptual and explorative. It is research with a purpose to find testable conditions for developing hypotheses to find evidence of generic or dynamic forces in management's decision process of innovation strategies and the creation of innovative solutions, of systems and resources of material as well as immaterial kind and with emphasis on sustainable growth.

In this study we will investigate three projects from seminars and at meetings with large corporations in the "high tech"-sector. The projects are chosen without any specific criteria; there is no consideration taken about size, industry, number of employees etc. These three projects emanate from inventions that initially were discussed in an "open innovation" in the energy sector. One project is an up and running "high-risk" project about energy storage, the second one is one, at present paused, large plant for a unique, high energy consuming material manufacturing process and the third one describes "the start-up" procedures with new material (graphen).

Method and Time schedule

The research approach is "nomology deduction" and some research methods for these case studies (Yin 1994) will be further discussed within academia.

The research will be conducted during 2025, within the respective company/project, and according to a five step-model based on formalized questioning (Grant, R.M., 1991, 1996).

———————————-

[1]Per Staffan Boström (2019), Resource Growth Through Corporate Innovation Capital. Linköping Studies in Science and Technology. Dissertation No, 2189, University of Linköping ISBN 978-91-7929-111-2

[2]Dynamic Innovation Capital (DINNCAP) To evaluate change of “innovation capital” in open innovation as effect of and prerequisite for resource development and value growth – through applying the European Excellence Model (Conference paper, 2019)

[3]“ibid” Boström, P.S., (2019) Chapter 9 to 11

Rune Wigblad: Next generation more efficient solar cells

Next generation more efficient solar cells

Rune Wigblad

2024-10-14

The solar cells that dominated the market in 2022/2023 were silicon-based (about 95% silicon-based cells) and these had become cheaper. There are many indications that these older cells will be replaced or supplemented with a new generation of solar cells with better performance.

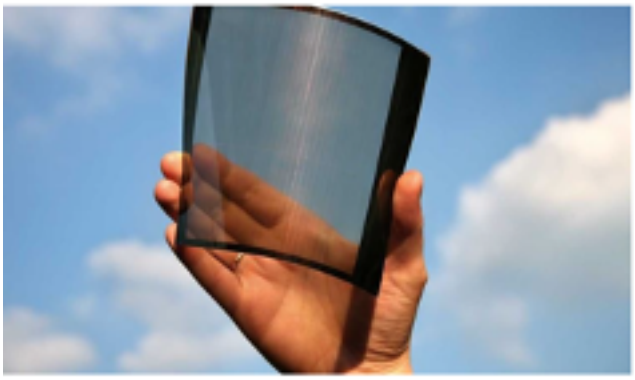

Figure 1. Illustration of one of several developments of lightweight, bendable and partially transparent solar cells

Figure 1 shows one of the new generation of solar cells which is based on a "miracle material" - perovskite [perovskit]. Halide perovskite materials are crystals (CH3NH3PbI3). Halides is a collective name for fluorides, chlorides, bromides, iodides and astatides. Perovskite-based solar cells are uncommon in practice today.

Perovskite is lightweight, flexible, and much cheaper to produce, as well as having high efficiency. They absorb different spectra of sunlight compared to silicon. It is possible to combine silicon and perovskite in so-called tandem cells, to reach a wide light spectrum and thus very high conversion efficiency.

One example: Oxford PV which has a relatively large scale (not mass production yet) of its production of Perovskite-based solar cells claimed the world record on February 6, 2024 with its ordinary large tandem panel that had reached 25% efficiency (conversion efficiency) [1] which is higher than silicon-based cells alone (18-24%). On September 5, 2024, Oxford PV claimed a new record, 26.9%[2].

A driving force for change is that the next generation of solar cells with only perovskite is expected to be very cheap to manufacture in a "simple manufacturing procedure"[3]. In the near future, perovskite-based solar cells may become so cheap that the cost of the technology almost "disappears" in the larger installation cost.

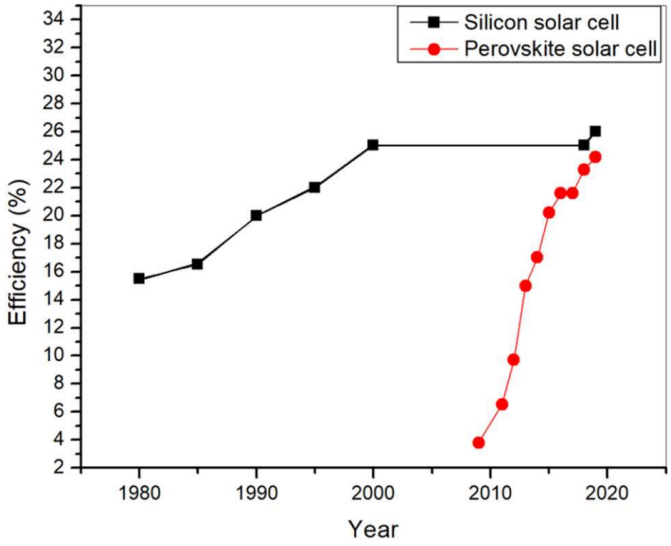

Figure 2. Pure perovskite (not tandem) rapidly improved, until the year 2020[4]

Figure 3 below shows the efficiency increase over time for small tandem cells (Perovskite and silicon) from different lab environments[5].

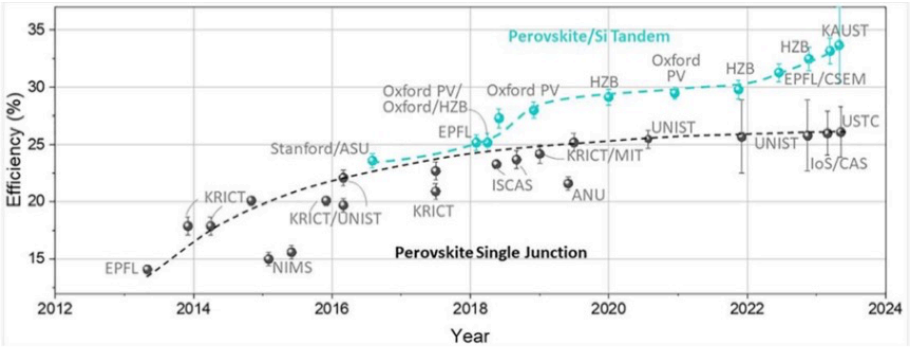

Figure 3. Efficiency increase of small perovskite-based tandem cells over time

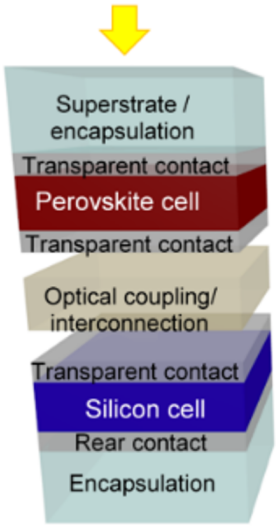

Figure 4. Example of a tandem cell construction[6]

The above paves the way for rapid commercial breakthroughs if the problems with certain "new business difficulties" can be solved.

Perovskite is still a relatively immature technology that has problems with "degradation" over its lifetime, i.e. rapidly decreasing efficiency due to poor dirt and heat resistance.

Andries Wantenaar (Solar Analyst - Rethink Energy) assessed on 30 October 2023[7] that the "First movers" in the market will be five players; Microquanta Hangzhou, Utmo-Light Wuxi Jiangsu Province, GCL System Integration Munich, Caelux California, and Oxford PV UK. He also assessed a breakthrough for almost all players in 2026.

In January 2024, Wigblad[8] identified about 20 mass production investments in the world until the year 2027.

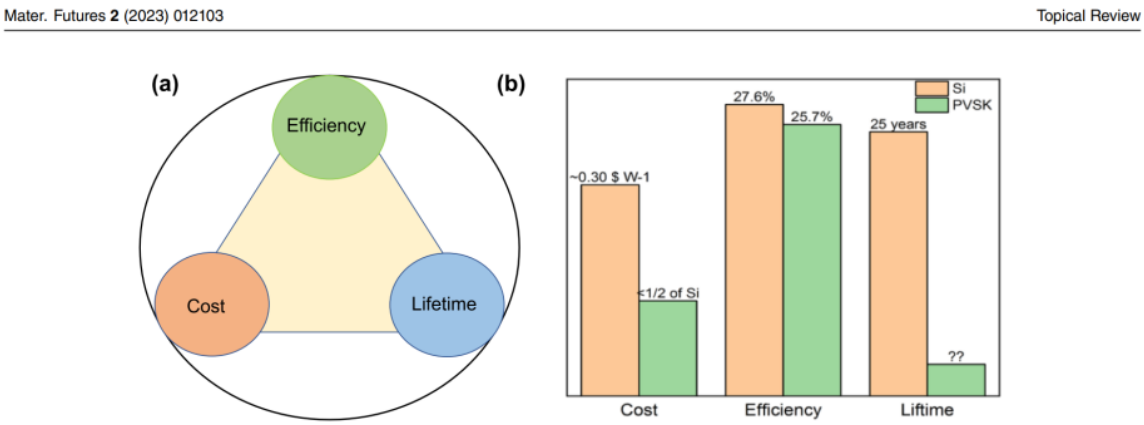

Figure 1. (a) Schematic representation of PSCs' 'golden triangle' parameters of efficiency, lifetime, and cost. (b) Compared with crystalline silicon solar cells, only cost has a clear advantage in the near future.

Figure 5: Illustration of the lifetime problem in 2023 that scientists are trying to solve.

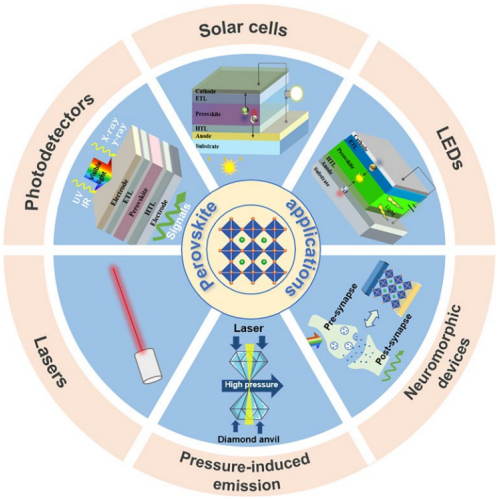

Figure 6. Some niche markets for perovskite-based solutions[9]

Sweden needs to upgrade technology evaluations of both Wantenaar's and Wigblad's studies. Such knowledge about perovskite can provide a readiness for the international breakthrough.

In which areas is perovskite likely to break through first?

Is Mass Production Creating Solar Electric Vehicles?

There is already an energy-autonomous catamaran on the market today[10]:

Toyota Motor Corp of Japan has a project with EneCoat Technologies Co to create "perovskite solar cells" which the companies estimate will provide energy-efficient cars by 2026[11]. On July 18, 2024, an investment in EneCoat of approx. SEK 380 million became public[12].

What happens in massmarkets for vehicles needs to be studied continuously in order to assess when a technical breakthrough happens.

The Swedish company Exeger has developed a thin and bendable solar cell that can be attached to, for example, reading tablets, helmets or clothing. Exeger doubles its product range with a series of new launches in connection with the giant trade show CES in Las Vegas (Jan 2026)[13].

[1]Oxford PV sets new solar panel efficiency record (optics.org)

[2]https://www.oxfordpv.com/news/20-more-powerful-tandem-solar-panels-enter-commercial-use-first-time-us

[3]Gu. Z. et al. (2015) “Interfacial engineering of self-assembled monolayer modified semi-roll-to-roll planar heterojunction perovskite solar cells on flexible substrates”

[4]Roy et al; Solar Energy 198 (2020) 665–688

[5]Szabo G. (2023) “Are Perovskite Solar Cells Reaching the Efficiency and Voltage Limits?”. ACS Energy Lett. 2023, 8, 3829–3831. https://doi.org/10.1021/acsenergylett.3c01649

[6]https://www.fluxim.com/perovskite-silicon-tandem-pv-record-updates

[7]Commercial perovskites imminent – pv magazine International (pv-magazine.com)

[8]Wigblad, R., jan 2024 FSS-40.pdf (stromstadakademi.se). No. XXXX, JANUARI MMXXIV, ISBN: 978-91-988820-5-6

[9]L Zhang at al. Nano-Micro Lett. (2023) 15:177

[10]https://silent-yachts.com/silent-62-3-deck-world-premiere/

[11]Perovskite solar cells for vehicle-integrated - Electric Motor Engineering

[12]Toyota Eyes Perovskite Solar Cells For Solar Car Of The Future (cleantechnica.com)

[13]Exeger visar upp nya solcellsprodukter på CES i Las Vegas (di.se)