

# Workshop

## Attracting and selecting your future team members



### Finding the first few people

- My personal hiring challenge
- What I did, what I intended, and what (I think) resulted from that



### Finding additional people

- Ideas for later stages of an Emmy Noether Research Group (staff for additional projects, students, etc.)



**Dr.-Ing.  
Saskia Schimmel**



**M.Sc. Thomas  
Wostatek**



**M.Sc. Rajesh  
Chirala**



**Ege Civas**

# The first few people



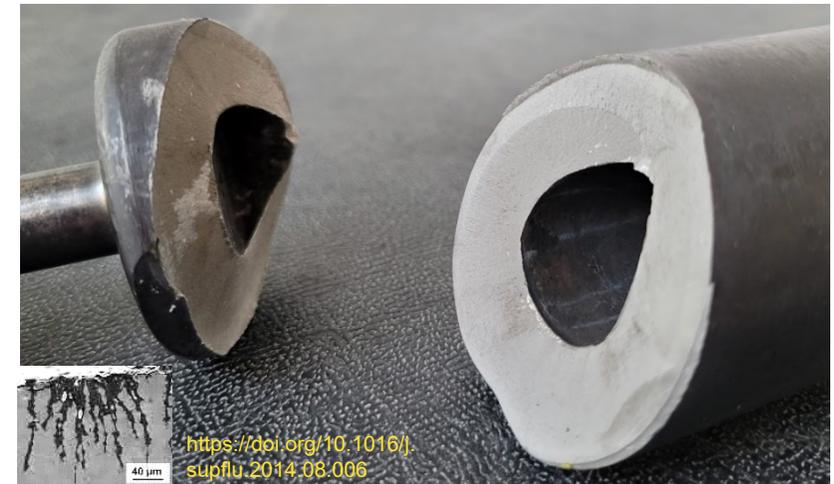
- My personal hiring challenge
- What I did, what I intended, and what (I think) resulted from that

## Background: What my team needs to deal with (apart from myself)



### Ammonothermal synthesis

- High pressures, high temperatures, hazardous chemicals
- Custom reactors that require attention to detail in handling
- Complex interdisciplinary topic that requires analytical thinking from the improvement of tools to the interpretation of results



## Think about what study subjects prospective team members should bring

Chemical engineering  
(ammonothermal synthesis of nitrides)

Physics  
(of nitride semiconductors)

Mechanical engineering  
(high-pressure technology)

Electrical engineering  
(nitride semiconductor devices)

Materials science  
(semiconductors; high-pressure technology)

Chemistry  
(ammonothermal synthesis of nitrides)

2 people can never cover all of these



- Which subject areas are most important in the beginning?
- For those that matter only at a later stage of the project, try to find someone who is at least intrinsically drawn towards the things they will need to learn.
- What do I have the least knowledge about (which additional knowledge by a PhD student would be most helpful)?



## Think about what knowledge, skills and traits are critically important in your situation



People who work confidently AND carefully with potentially dangerous stuff



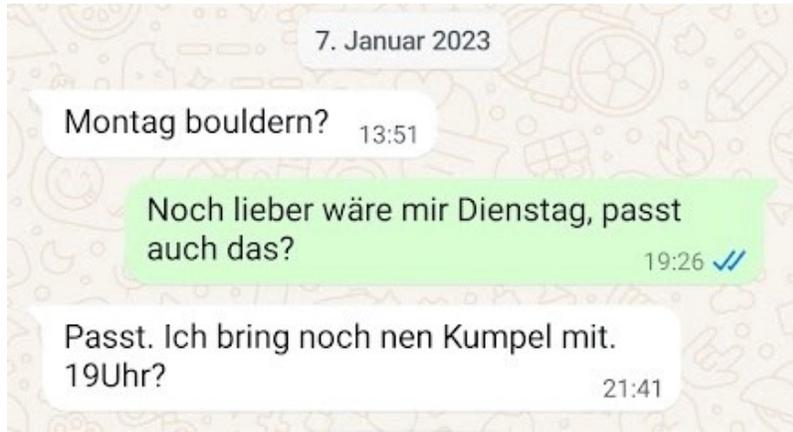
People who are willing to plan and set up a lab before the science can begin, and distribute the tasks in whatever way is best for the team



Someone who is ideally more experienced than the average person starting a PhD, who can work more independently early on



## Assist your luck: Tell your network that you got the grant and will establish a group!



You might head out for leisure time  
... rolling over the floor ... *in front of your candidate*  
*without knowing ...*



→ *they get the most authentic impression of you as a person*

(we did an extensive, exhausting on-site interview later)

Tell people who

- Know you
- Know something about the work
- Will bring in only people they think would fit

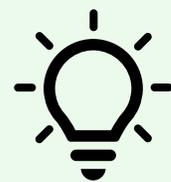
## If possible, invite applicants for a lab tour



- If necessary, clean up just well enough to not scare them off... make sure they get an authentic idea about inevitable tasks

- Observe how they react (including body language) upon e.g.,
  - Seeing inevitable „blue-collar-jobs“ at hand
  - Realizing hazards associated with the necessary work

- Observe what questions they ask



If they pester you with questions that's a good sign (shows interest and curiosity), particularly if *you* have trouble answering some of them (shows knowledge)

Don't show too much either, to ask open questions in which applicant's can't take the „right“ answers from what you have shown

## To attract good fits, provide them with more than just a job add



Use an eyecatcher that preferentially „catches“ people with traits you look out for



Saskia Schimmel (She/Her) • Sie  
Emmy Noether Research Group Leader  
1 Jahr • Bearbeitet • 🔒

I'm currently about to establish my own research group working on nitride semiconductors at [FAU Erlangen-Nürnberg](#) - special thanks to Prof. [Jörg Schulze](#) for hosting the group!

The first batch of research objectives defined has attracted funding right away: The [Deutsche Forschungsgemeinschaft \(DFG\) - German Research Foundation](#) has recently decided to fund my project on "Novel nitride materials for electronic devices" via the Emmy Noether Programme. In addition, [FAU Erlangen-Nürnberg](#) supports me in developing another proposal via the Emerging Talents Initiative (ETI).

My vision for the team is that while everyone will have their own scientific directions to explore, there will be a culture of mutual support and shared overall objectives.

Each of these research endeavors will come with significant challenges and provide plenty of learning opportunities due to their cross-disciplinary nature and novelty.

Links to job offers (in German) will be posted in the comments!

[#nitride](#) [#semiconductor](#) [#synthesis](#) [#crystallization](#) [#phdposition](#)  
[#inorganicchemistry](#) [#physics](#) [#engineering](#) [#materials](#)

1 year later



Review  
**Ammonothermal Crystal Growth of Functional Nitrides for Semiconductor Devices: Status and Potential**

Thomas Wostatek <sup>1</sup>, V. Y. M. Rajesh Chirala <sup>1</sup>, Nathan Stoddard <sup>2</sup>, Ege N. Civas <sup>1</sup>, Siddha Pimputkar <sup>2,\*</sup> and Saskia Schimmel <sup>1,\*</sup>

# Present your group at events for young researchers



Prof. Hiroshi Amano  
浩天野



Global progress through international collaboration – the example of ammonothermal growth of GaN

Dr.-Ing. Saskia Schimmel  
Chair of Electron Devices, FAU Erlangen-Nürnberg, Germany

## Virtuelles Humboldt-Kolloquium

"Top Global Research" und das Humboldt-Netzwerk:  
Neue Wegmarken der deutsch-japanischen Forschungskooperation

17. und 18. November 2022

Alexander von Humboldt  
Stiftung/Foundation

Online/offline  
National/international

...

## 11th Annual Meeting of the "Young Crystal Growers (jDGKK)"



Friedrich-Alexander-Universität  
Lehrstuhl für Elektronische  
Bauelemente | LEB

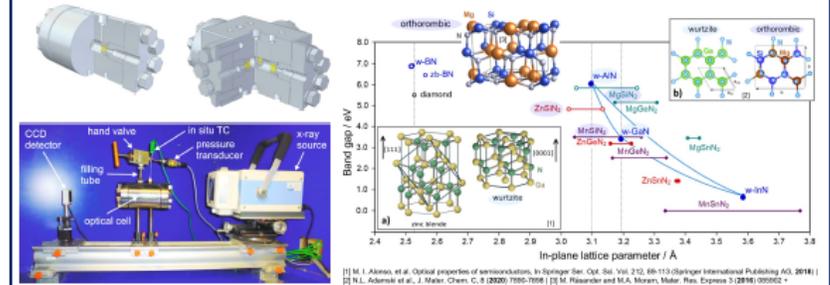


Dr.-Ing. Saskia Schimmel  
Cauerstr. 6  
91058 Erlangen  
Tel.: 09131 85 28535  
saskia.schimmel@fau.de  
<https://www.leb.tf.fau.de/>

eti EMERGING  
TALENTS  
INITIATIVE

### Emmy Noether Programme-Project: Novel Nitride Materials for Electronic Devices

- Wide bandgap semiconductors, e.g. for energy-efficient power electronics
- Wide bandgap nitride semiconductors with potential for heteroepitaxial integration:
  - AlN, GaN, AlGaN
  - MgSiN<sub>2</sub>, ZnSiN<sub>2</sub>, MnSiN<sub>2</sub>
- Ammonothermal growth of bulk crystals of high structural quality and with suitable electrical conductivity (impurity & doping control) from supercritical NH<sub>3</sub>-based solutions
- Fundamental understanding of physics and chemistry of ammonothermal synthesis
- World-wide unique possibilities for ammonothermal experiments with in situ monitoring, amongst others via x-ray imaging, Raman- and UV-Vis spectroscopy



### Further Areas of Experience and Research Topics on the Horizon

- High-energy computed tomography for tracking mass transport e.g. of GaN throughout the autoclave volume (in collaboration with M. Salamon, Fraunhofer Development Center for X-ray Technology)
- Numerical modelling of ammonothermal crystal growth with validation via complementary in situ monitoring technologies, and evaluation for both fundamental understanding and process development

### Methodical Toolbox

In situ Monitoring    Synthesis & Crystal Growth    Numerical Modelling    Machine Learning



# Additional people



- Ideas for later stages of an Emmy Noether Research Group (staff for additional projects, students, etc.)

## Stay in touch with reasonable people you met during the recruitment process

- Take the time to treat your applicants reasonably, including those that don't get the job
- Some will stay in your network, extending your reach towards younger people in relevant subjects



# Share experiences/content relevant to young researchers



**Saskia Schimmel (She/Her) • Sie**  
 Emmy Noether Research Group Leader  
 1 Jahr • 🌐

Are you a **#PhD** student suddenly approaching **#lifeafterPhD**? 😊  
 Trying to figure out where to go for your **#postdoc**, and what to consider?  
 Wondering what **#Japan** might be like as a destination?

Thanks to the support of the **Japan Society for the Promotion of Science (JSPS)** and the **Alexander von Humboldt Foundation**, I've had the opportunity to work and live in Japan as a **#postdoctoral #researcher** for 2 years.

You can now read about my experience in an interview published in the latest newsletter of the **JSPS Bonn Office** (starting page 5, in English 😊): <https://lnkd.in/eNt5b5eM>

**Kerstin Sommer Kathrin Moeslein Mizutani, Katsuya**

Weblink

[jspd-bonn.de](https://jspd-bonn.de)



👍 Gefällt mir

💬 Kommentar

🔄 Teilen

➡️ Senden

📊 5.407 Impressions

📈 Analysen anzeigen

Helps to grow your network among younger researchers

If it's your experience, it also helps your applicants to get an idea about you as a human being

**研究者インタビュー**  
*Researcher Interview*

**Saskia Schimmel**  
 Former JSPS Postdoctoral fellow  
 Postdoctoral researcher at the Chair of Electron Devices, Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, Germany

**Fellowship type**  
 Standard Program (June 2019 - May 2021)

**Affiliation during the fellowship**  
 Institute of Materials and Systems for Sustainability, Nagoya University, Japan

**Academic/Career Background**  
 I studied Materials Science at FAU Erlangen-Nürnberg in Germany, with one year during my Master studies spent at Linköping University in Sweden. Thereafter, I did my PhD in Engineering at FAU with Prof. Peter Wellmann. My topic for PhD was: In situ visualization of the amorphothermal crystallization process using x-ray measurement techniques. That topic also got me into the community of nitride semiconductor crystal growth. At a conference in Finland late during my PhD, I was asked whether I could see myself coming to Japan for a Postdoc, which got me thinking about that possibility. Later, I learned of the emerging opportunity to pursue the amorphothermal crystal growth of gallium nitride (GaN) in the laboratory of Prof. Hiroshi Amano, the group that I then joined for my JSPS Fellowship. Sort of on my way to Japan, I also joined the laboratory of Prof. Siddha Pimpitkar at Lehigh University (USA) for 6 months.

**Postdoctoral Fellowships for Research in Japan**  
 To promote international scientific cooperation, JSPS encourages highly qualified researchers from the worldwide to come to and conduct joint research activities with colleagues at Japanese universities and research institutes. JSPS offers two postdoctoral fellowship programs, each with different eligibility requirements.

**Postdoctoral Fellowships for Research in Japan**  
 Standard Program (June 2019 - May 2021)  
 Research Program

**JSPS Website**  
<https://www.jsp.or.jp/en/for-intl-researchers>

Researchers Interview in the **JSPS Bonn Office Newsletter 'Bonbon Dokei'**, No. 74, 2023

**DGKK-Nachrichten**

**Internationale Postdoc-Erfahrung im Rückblick: Einmal USA, Japan, und zurück nach Deutschland**

Saskia Schimmel, Lehrstuhl für Elektronische Bauelemente (LEB), Friedrich-Alexander-Universität Erlangen-Nürnberg

Kurze Zeit nach dem Einreichen meiner Dissertation an der **FAU Erlangen-Nürnberg** (am Lehrstuhl Materialien der Elektronik und der Energietechnologie) trat ich im Oktober 2018 einen halbjährigen Aufenthalt an der **Lehigh University (Bethlehem, PA, USA)** an. Dort arbeitete ich als Gastwissenschaftlerin in der damals im Aufbau befindlichen Gruppe von **Prof. Siddha Pimpitkar**. Dies brachte zwar mit sich, dass Aufgaben und Ziele an den tatsächlichen Fortschritt des Laboraufbaus angepasst werden mussten, dennoch hat sich auch dieser Aufenthalt für beide Seiten definitiv gelohnt. Langfristig betrachtet sind hier in erster Linie drei Aspekte zu nennen. Die Zusammenarbeit vor Ort stellt eine optimale Basis zum Aufbau langfristiger wissenschaftlicher Kooperationen dar. Wertvoll ist auch der Einblick in die Entstehungsphase einer Arbeitsgruppe und verschiedene Aspekte des Labor-Designs. Und drittens ergab sich so die Möglichkeit, eine weitere Landeskultur und Führungskraft in ihren Wirkungen auf eine Arbeitsgruppe zu beobachten. Von diesen langfristig nützlichen Aspekten abgesehen hat mir die Arbeit in neuem Umfeld auch einfach Spaß gemacht. Durch das breite Aufgabenspektrum von der Mitwirkung an einem Antrag über die Planung und Installation des zentralen Datenerfassungs- und Kontrollsystems des neuen Labors (und weiterer Laboreinrichtungen) bis zur Betreuung von Studierenden gab es viel Abwechslung. Gegen Mitte des Aufenthalts fand außerdem noch meine Verteidigung statt. Im Anschluss genoss ich es, mich voll auf die neuen Aufgaben fokussieren zu dürfen.

Nach kurzem Zwischenstopp in Deutschland im Frühjahr 2019 konnte ich Ende Mai 2019 den Hauptteil meiner postdoctoralen Auslandsphase antreten: 2 Jahre in der Arbeitsgruppe von **Prof. Hiroshi Amano** an der **Universität Nagoya** in Japan. Im Rahmen meines von der **Japan Society for the Promotion of Science** geförderten Projektes **Ammonothermal growth of low dislocation density, high purity bulk GaN for power electronic devices** war ich dort in eine erst kurz zuvor auf die Universität Nagoya erweiterte Zusammenarbeit eingebunden. Diese innerjapanische Kooperation umfasst außer der Gruppe von Prof. Amano an der Universität Nagoya auch die Gruppe von **Prof. Shigefusa F. Chichibu** von der **Universität Tohoku (Sendai)** sowie die Industriepartner **Mitsubishi Chemical Corporation** und **The Japan Steel Works**, welche zusammen eine der führenden Gruppen im Bereich ammonothermal Kristallzüchtung von Galliumnitrid darstellen. Über die bereits erwähnten Personen hinaus waren vor Ort insbesondere **Prof. Yoshio Honda** und **Prof. Daisuke Tomida** beteiligt. Letzterer war erst kurz vor Beginn meines Aufenthalts von der Universität Tohoku an die Universität Nagoya gewechselt, was für mich den interessanten Nebeneffekt hatte, dass ich parallel zu meiner eigenen Inte-

gration in die Arbeitsgruppe auch die eines einheimischen Neuzugangs beobachten konnte. In der wissenschaftlichen Zusammenarbeit zeigte sich der **Wert des Zusammenbringens von Personen mit unterschiedlichem Erfahrungshintergrund**. Dieser liegt aus meiner Sicht nicht ausschließlich im Austausch von Wissen, Forschungserfahrung und Ideen, sondern auch in einer Flexibilisierung der Wissenschaftskultur: Die Wahlmöglichkeit aus Verhaltensoptionen aus mehreren Kulturen erleichtert es, durch Kultur oder Gewohnheit eingefahrene Denk- und Handlungspläne zu verlassen, Dinge neu zu denken oder anders anzugehen. Diese positiven Effekte überwiegen meiner Erfahrung nach gegenüber dem offensichtlichen Nachteil der Sprachbarriere. Weniger offensichtlich ist vielleicht der Nebeneffekt, dass man Diskussionen unter verstärkter Nutzung von Grafiken und Schrift führt. Dies kostet zwar Zeit, bewirkt aber oft auch, dass man schon vor der Diskussion klarer über den jeweiligen Sachverhalt nachdenkt.



Abb. 1: Willkommensfeier zum Auftakt des Aufenthalts an der Universität Nagoya mit den Kooperationspartnern Prof. Shigefusa Chichibu (ganz links, Universität Tohoku und seinerzeit auch Universität Nagoya) und Makoto Saito (ganz rechts im Vordergrund, Universität Tohoku und Mitsubishi Chemical Corporation). Entlang der Tischrückseite von links nach rechts: Prof. Daisuke Tomida, Saskia Schimmel, Prof. Yoshio Honda, im Vordergrund in der Mitte ist noch Prof. Maki Kushimoto zu sehen (seinerzeit alle Universität Nagoya). Foto: privat.

Zudem hatte ich den Eindruck, dass das **Erlernen einer stark von den zuvor gelernten Sprachen verschiedenen Fremdsprache** die Kreativität fördert. Nun ist so ein Effekt an einer Einzelperson (noch dazu ohne systematische Datenerfassung) unmöglich statistisch valide analysierbar, gerade eben habe ich aber aus Neugier nach entsprechender Literatur gesucht. Offenbar gibt es tatsächlich solche Effekte und auch entsprechende Studien zu solchen sekundären Auswirkungen des Erlernens von Fremdsprachen [1]. Da habe ich wohl gerade einen weiteren Grund entdeckt, weiter zu versuchen, diese Sprache besser zu erlernen ... Es sei der ausge-

# Organize something for young researchers in your field

Young researchers working in crystal growth and characterization, read on!

We're looking forward to welcoming you in Erlangen to attend the

**12th Annual Meeting of the Young Crystal Growers (jDGKK):**

- Present your own research!
- Meet your peers!
- Explore career possibilities!

**Tuesday, March 5th in Erlangen (Germany)**

**Lectures:**

- "Defects in Single Crystal Growth" by Prof. Andreas Danilewski (formerly [Albert-Ludwigs-Universität Freiburg](#))
- "Bulk Crystal Growth of Novel Oxides" by Dr. Christo Gugushev ([Leibniz-Institut für Kristallzüchtung](#))
- "High Energy X-Ray Diffraction as a Method for Defect Analysis of Massive Crystals" by Dr. Matthias Weisser ([FAU Erlangen-Nürnberg](#))
- "AIXTRON company profile - MOCVD Production Technology" by Prof. [Michael Heuken \(AIXTRON SE\)](#)
- "CdTe-Einkristalle für Photon Counting – Ein Quantensprung in der CT-Bildgebung" by Dr. Justus Tonn ([Siemens Healthineers](#))
- "Material engineering of multijunction solar cells for space applications" by [Dr. Mahmoud AL Humaidi \(AZUR SPACE Solar Power GmbH\)](#)

More information: <https://lnkd.in/dquzkwEs>

Sebastian Gruner, [Thomas Wostatek](#), [Merve Kabukcuoglu](#), [Arvind Subramanian](#) thank you for contributing to our work in the orga team! The process of our logo design was an example that having a team with [#diverse](#) backgrounds clearly improves the outcome.



Abstract Deadline: February 12<sup>th</sup>, 2024



**12th Annual Meeting of the  
Young Crystal Growers**

Be visible for young researchers and build your network among them

## Get involved in teaching



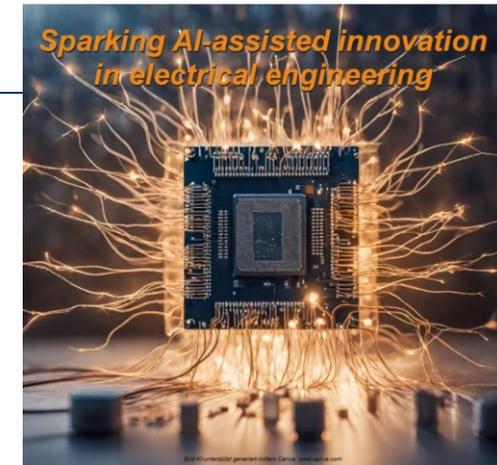
**Saskia Schimmel** (She/Her) • Sie  
Emmy Noether Research Group Leader  
1 Std. •

At the Chair of Electron Devices (Lehrstuhl für Elektronische Bauelemente, <https://www.leb.tf.fau.de/>), we're embarking on a project targeting a novel **#teaching** approach that simultaneously aims to spark **#AI**-assisted **#innovation** in **#electrical #engineering**.

We will provide our students with subject-specific training in dealing with AI, specifically in the fields of **#semiconductor** devices and semiconductor technology. The innovative and interactive approach to the lecture material will also create a new way of domain knowledge acquisition and consolidation.

Together, Professor **Jörg Schulze** and I have acquired funding for this via the "Innovationsfonds Lehre" of **FAU Erlangen-Nürnberg**. Thanks to **Jörg Schulze** and **Jan Frederik Dick** for contributing to the proposal and helping to set things up!

Further information on support for projects that develop innovative concepts for teaching at **FAU Erlangen-Nürnberg** (in German): <https://lnkd.in/dNyAkG2s>  
**#Elektrotechnik #Lehre #KI #Halbleiter**



- Get in touch with prospective student assistants, Bachelor/Master thesis students (who may want to do a PhD afterwards)
- Educate students in skills useful for work in your group

**Thank you for listening!**  
**Now, let's discuss and collect more ideas & experiences!**



Short URL:  
<https://qrco.de/bfEqKN>