

(別紙)

専攻分野及び研究計画
Field of Study and Study Program

Name in full, in your native language

(姓名 (自国語))

(Family name/Surname)

(Given name)

(Middle name)

Name in Roman capital letters

(姓名 (ローマ字))

(Family name/Surname)

(Given name)

(Middle name)

Nationality

(国籍) Sweden

Proposed study program in Japan (Outline your field of study on this side and the specifics of your study program on the reverse side of this sheet.

This section is one of the most important references for selection. The statement must be typewritten or written in block letters. Additional sheets of paper may be attached if necessary. If plagiarism or fraud is discovered after selection, the selection will be cancelled retroactively.)

日本での研究計画；この研究計画は、選考及び大学配置の重要な参考となるので、表面に専攻分野の概要を、裏面に研究計画の詳細を具体的に記入すること。記入はタイプ又は楷書によるものとし、必要な場合は別紙を追加してもよい。なお、採用後に不正、盗用等が判明した場合は遡って採用を取り消す。

If possible, please write your response in Japanese. (相当の日本語能力を有する者は日本語により記入すること。)

1 Present field of study (現在の専攻分野)

Material Engineering with excellence in process metallurgy.

My education is wide if yet in a narrow field, the study of the physical and chemical behaviour of metallic elements, their intermetallic compounds, and their mixtures.

In an abbreviated list my field of study covers melting, extractive metallurgy, alloys, casting, sintering, additive manufacturing(3D printing), laser cladding, forging, rolling, extrusion, machining, fabrication, heat treatments and analysis of metals .

Been part of multiple projects with Swedish metal industries during my education.

Researched on how to optimize the slag reduction in the electric arc furnace.

Also been part of introducing a new product to the electric arc furnace line from the scrapyard to the forging.

Was part of a research into the electric arc furnace exhaust which focused on analyzing the dust that accumulates and if it could be reused in the process.

All I have done so far has prepared me to either go out in the industry and start working with process metallurgy or to continue it on an academic level.

2 Your research topic in Japan: Describe articulately the research you wish to carry out in Japan.

(渡日後の研究テーマ：日本においてどういった研究がしたいかを明確に記入すること)

Material Engineering with excellence in metallurgy.

We are today working with metals on such a complex level that there is a lack of people fully understanding the specific methods and many industries does what they know works without really knowing why it works, while also being under constant pressure to improve and develop.

The simplest way would be to say that I want to master how to make a stronger steel.

Metallurgical research aims to advance the process of making metals in all the tiny details surrounding it in a scientific way and not by just trying to see what works best, the aim goal is to make a product perfect for its purpose while keeping down the cost for the companies and environmental effects for the planet.

There are both lots of potentials for the industry and problems that needs to be handled and I want to help with both.

In more detail I want to research about the newer processes of ferrous metallurgy that the industry is using today, be it powder metallurgy, nitrogen alloys, the HIP process, new superalloys or tackling the current problems of 3D printing with metals.

3 Study program in Japan: (Describe in detail and with specifics – particularly concerning the ultimate goal(s) of your research in Japan)
 (研究計画：詳細かつ具体的に記入し、特に研究の最終目標について具体的に記入すること。)

I want to expand the subjects I have already started delving in master them to the level that I can
 The continued research into metallurgy is of grave importance for any country that wants to be one of the leading countries in the field as it is a field that grows with an exponential speed right now with all from making alloys that we didn't thought was possible before to ways of production we couldn't imagine before, I want to be part of this journey and do all I can to help it along.

The reason why I want to do this in Japan is to accumulate the knowledge of two of the leading countries, Sweden and Japan, when it comes to metallurgy to be able to drive the development forward and bring both countries research communities closer together be the dominant forces in the industry.
 Another reason why I specifically want to do it in Japan is because some of the world's foremost metallurgists are Japanese, I have already been taught by some of the best metallurgists in Sweden, Jörgen Andersson PhD, Nils Lindskog MSc, Voicu Brabie Sc.D, and Leif Bohlin Tekn.Dr. And even if they still have lots more they could teach me I believe an other perspective and change in research environment would help me spectacularly forward and came highly recommended that I would do so by Jörgen Andersson and Voicu Brabie.

Under the 2 years I would be part of a research team in Japan while attending classes, I hope to be in multiple researches over the time and fulfill a least few that our industry would have use of, To then after I fulfilled my Master's of Science degree close to the end of 2020 see over the possibilities to get a PhD in Japan and become a permanent citizen or maybe do it in Sweden depending what the future holds.

Suggested research timetable

Month	Task*	Ongoing Task	Potential courses**
Month 1	Analyze the fundamentals of the Electroslag Remelting process for making high-quality ingots, company's current use of it and development since 1930 when it was first introduced.	Monitor how different metal industries with an Electroslag Remelting process are using it, in the primary/secondary production lines, for their products and to meet their customer's demands on high-quality steel and superalloys.	<ul style="list-style-type: none"> ● Extractive Metallurgy ● Metals Engineering ● Micro- and Nanostructures in Materials ● Phase transformation ● Materials characterisation and failure analysis ● Mechanical performance of engineering materials ● Materials selection and design ● Quality management ● Corrosion ● Ceramics engineering ● Simulation and Modeling Toolbox ● Quantum Metallurgy ● Powder Metallurgy ● Casting Processing ● Combustion in Industrial Processes Energy and Materials Sustainability ● Quantum Metallurgy ● Simulation and Modelling in Materials Processing ● Metal Forming ● Material Processes ● Economical Process Analysis and Strategy ● Industrial Metallurgical Processes
Month 2			
Month 3			
Month 4			
Month 5			
Month 6	Identify Electroslag Remelting process advantage over a process like Electric Arc Furnace and its specific complications when it comes to production on higher scale when it clearly produces a stronger and better steel than without it.		
Month 7			
Month 8			
Month 9			
Month 10			
Month 11			
Month 12	Identify the problems and complications with the Electroslag Remelting when it comes to further development and introduction of new alloys.		
Month 13			
Month 14			
Month 15			
Month 16			
Month 17	Consider what the next step forward for the Electroslag Remelting process is and what it could do for the steel industry as it exists today.		
Month 18			
Month 19			
Month 20			
Month 21			
Month 22			

*The availability of researching specific subjects in this industry is highly dependant on laboratory, advisor and company cooperation, the research could be adapted to a similar process to fit with the conditions without losing its complexity or importance.

**Courses are not known to exist at a Japanese university, and are suggested only in broad terms

and to assist in writing/research the research proposal only