

JSPS Summer Program 2017

JAKOB HELANDER



About me

- M.Sc. Engineering Physics Lund University (2009 2014)
- Exchange studies University of Tokyo (2012 2013)
- Ph.D. student in Electromagnetic (EM) theory Lund University (2014 2019)



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Research topic? Antennas!



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Research topic? Antennas!

- Transforms energy in EM-waves to electric currents
- Designing antennas for various applications (telecommunications, radar)
- 5G wireless systems







Finding a host laboratory

- My supervisor recommended me to apply for JSPS-SP
- Ando & Hirokawa Laboratory, Tokyo Institute of Technology
- Pioneering research concerning millimeter-wave communications (5G)
- Professor emeritus connection





- Simulations & measurements are essential for antenna development
- Does simulated- and measured performance correspond well?
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Ando & Hirokawa laboratory \rightarrow

- Design manufacturing
- Advanced measurement possible



<u>Intent:</u> Gain millimeter-wave measurement experience <u>Actuality:</u> Simulation study

State-of-the-art measurement equipment not available in Lund



Tokyo Institute of Technology





Lund University

Valuable research outcomes from the exchange:

- Insight in related research topics concerning millimeter-wave antennas
- Learn more about measurement equipment standards
- Different perspective on research methodology & how to supervise







Tokyo Institute of Technology

Lund University

Office customs

- Weekly supervision seminar (voluntary)
- Research interaction mostly with Assistant Professor
- Lab secretary helped with accommodation arrangements
- Shared office with Assistant Professor, secretary and senior researchers







Office customs

Interacting with students:

- English knowledge may be limited
- Opens up at social events
- Weekly leisurely football at campus
- <u>Lab parties</u> (usually involves alcohol)

Around campus:

- Tons of lunch places
- Convenience store has everything





Cultural experiences - food



- Ramen, (shio, shoyu, tonkotsu)
- Udon, soba, …
- Japanese curry
- Sushi

- Regional specialties
- Yakiniku
- Okonomiyaki
- Shabu shabu



Cultural experiences – orientation programme

JSPS was very keen on welcoming all JSPS-SP participants!

- Homestay at a Japanese family residence
- Language lessons and sightseeing





General advice

- Socialize with the Japanese:
 - Appreciate your cultural interest
 - Keen on learning English
- My labmates encouraged travel!
 - JR rail pass (pre-order from Sweden)
 - Regional food
- Mobile data
 - Prepaid SIM (unlocked phone)
 - WiFi-router (pre-order)
- If time allows, learn the syllabic scripts
- Cash is king





