

A day in the life of a microwave astronomy engineer...

Skills for Employment at Observatories

New Technologies for Canadian Observatories – AGM Week

Dr. Lisa Locke

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Herzberg Astronomy & Astrophysics Research Centre (HAARC)



Me

Work/School

- Canadian Space Agency
- Owens Valley Radio Obs
- NRAO Green Bank
 - BSc EE – Univ of Alberta
- NRAO Green Bank
 - MSc EE – Univ of Cape Town, South Africa
- Arecibo Observatory
- NRAO Socorro
 - PhD EE – Univ of Victoria (yah!)
- NRC Herzberg

- Skills I learned from School:
 - Electrical engineering, microwave & antenna theory
 - How and what to research
 - How to figure things out on my own
- Skills I learned from my Work:
 - How to be a leader (with advice from my Dad)
 - How to work with budgets & finance departments
 - How to work with people that are twice your age, in a totally different field, know more than you, and learn from them.
 - Project management
 - Public speaking
 - Work effectively despite bureaucracy
 - Cryogenics – maintenance, daily routines
 - Microwave Lab skills
 - Antenna building and testing
 - Work everyday on a telescope
 - Where to go to find what you need
 - How to solder correctly

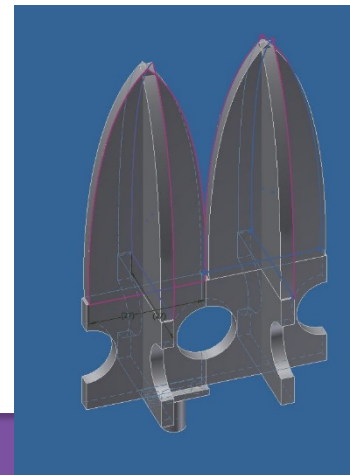
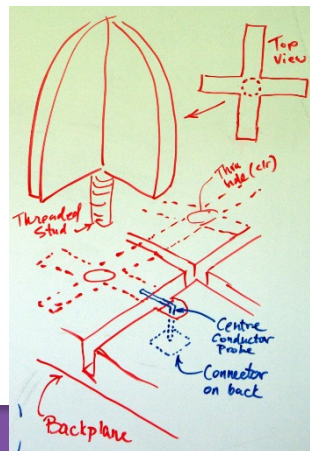
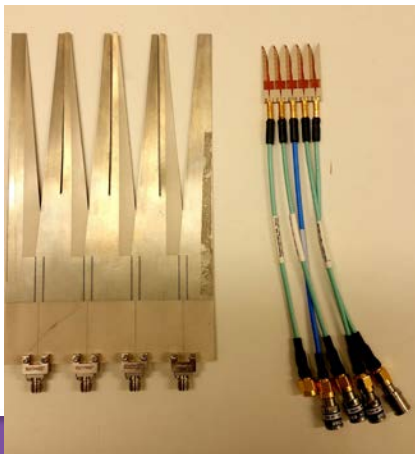
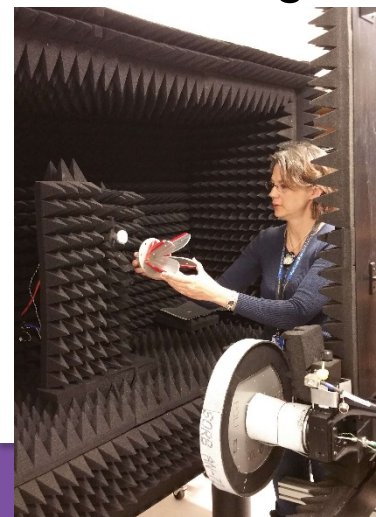
Working at NRC

- NRC's Herzberg Astronomy & Astrophysics Research Centre
 - Victoria (optical & mm) (engineering & astronomy)
 - Penticton (radio) (engineering & astronomy)



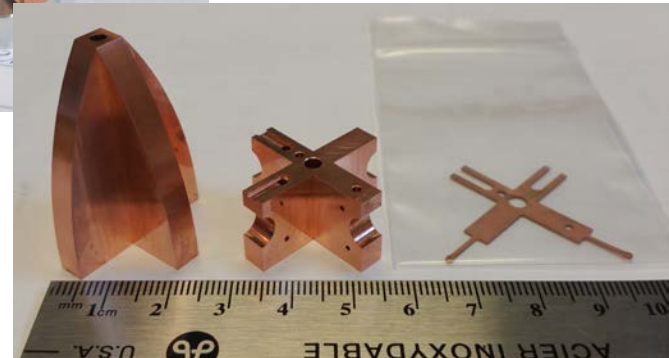
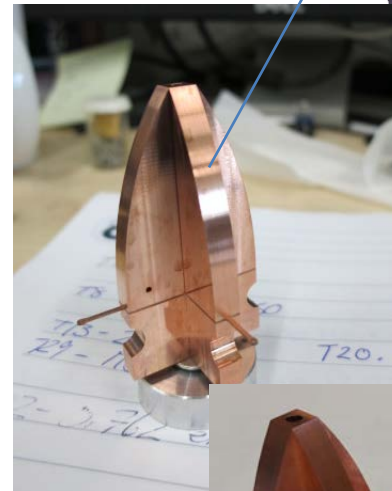
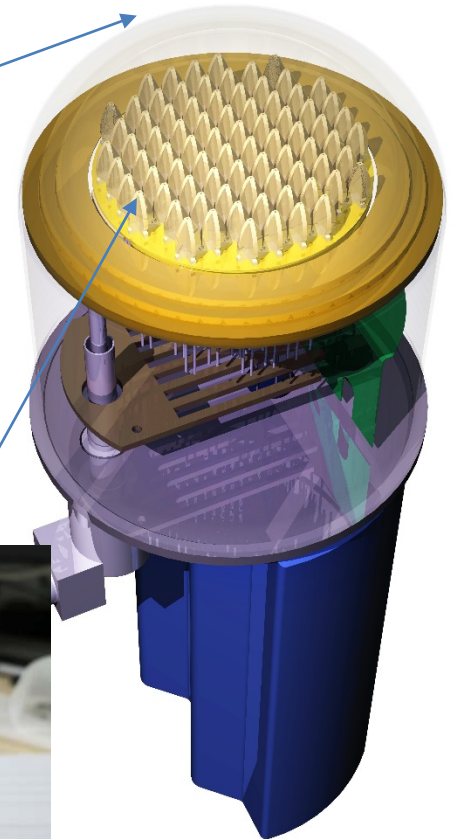
My Job

- Millimeter instrumentation group
- Design, build, support astronomy instrumentation



My Projects – Microwave Receivers

- 1. Cryogenic phased array feed receiver system
 - 2.8 – 5.18 GHz
 - Project Engineer
 - Multisite (Victoria & Penticton), multidisciplinary team
 - Team: EE - Antenna, EM, microwave analysis
 - Mechanical & Machining: radome, cryogenic dewar
 - EE/Digital: digitization, beamforming
 - Astronomy: big picture, why we are doing this, eventual user of instrument



NRC Engineering

- Project – time limited, \$\$ limited
- Part of a Multidisciplinary Team
- Project Management
- Systems Engineering
- Subject to Politics



Thank you

Lisa Locke, PhD
Millimeter Instrumentation Group, Engineer

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