JAMES MITCHELL

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EDUCATION:

September 2015 - Present **CERN**

PhD RF Engineering:
Crab Cavity HOMs and Impedances.†
Supervisors: Dr. Graeme Burt, Dr. Rama Calaga.

October 2012 - June 2015 **Lancaster University Engineering Department**

BEng Nuclear Engineering (First Class: 85%)
Comprised of: Electronic Engineering (inc. RF and EM), Mechanical Engineering, Nuclear Engineering
BEng Project: *Radiotherapy Linac Design.**

† Research Prize: Best student presentation at HOMSC'18 (international conference at Cornell University).
* Project award medal received from the IMechE for most outstanding final year research, development or design project.

RESEARCH and EXPERIENCE:

PhD at CERN - Crab Cavity HOMs and Impedances

· RF filters (HOM couplers) designed with FEA (CST) and equivalent circuit modelling (SPICE and AWR).
· RF cavity measurements (room temperature, superconducting and with proton beam).
· High power RF structure conditioning - design, build and test.

BEng Individual Research Project - Radiotherapy Linac Design

· Design, build and test of Radio Frequency (RF) $\pi/2$-mode standing wave annular coupled cavity.

Noteworthy Additional Projects

· High Power ($\sim 1\,\mathrm{MW}$) RF cavity combiner for solid state amplifiers - design, build and test.
· Travelling wave structure tuning (S-band electron booster for AWAKE) - test stand, procedure and tuning.
· Robot project (competitive robot design) - team leader and motor expert. Finished in second place.

Publications and Invited Talks

Conference proceedings (11), journal papers (5) and invited talks (11) are available at my website.

Roles of Responsibility

· Professional: CEPC International Review Commity for HOM couplers (China), CERN summer student supervisor, post-graduate engineering student representative, undergraduate nuclear engineering student representative.
· Outreach: Mathematics tutor (GCSE), high school and college seminars for students interested in futures in science.

TECHNICAL PROFFICIENCIES:

RF Measurements	Use and understanding of: Vector network analysers (VNAs), spectrum analysers, oscilloscopes, power meters.
Software	CST MWS, SolidWorks, CATIA, SmarTeam, Microwave Office AWR, LTSPICE, ANSYS (HFFS and mechanical).
Programming	PYTHON, MatLAB, LabVIEW.

TRAINING:

Schools and Conferences

Cockcroft Institute Lecture Courses†, Cockcroft Institute Particle Accelerator School, HOMSC*, HiLumi'16*, SRF'17*, HiLumi'18*, IPAC'18*.
†Second highest assessment score, *oral or poster presentation.

Technical training

Research methods, STFC HSE (Health, Safety and Environment), Radiation Test Facility, Cryogenics Safety, Project Management, LaTeX, MADX, CATIA and SmarTeam, Self-Rescue Mask, Radiation, LabVIEW Core 1.

Additional Information: UK national with full (clean) driving license.