

# PHYSTAT's “Stats meets ML”

9<sup>th</sup> – 12<sup>th</sup> Sept 2024

Introductory Remarks

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# PHYSTAT

<https://phystat.github.io/Website/>

Events about statistical issues in Particle Physics analyses, and in Astro/Cosmo.

Started in 2000 with “Confidence Limits Workshop” at CERN

Workshops, Seminars, Informal Reviews

Website has slides and video of meetings

Recently including ML.

This meeting: Statistical issues connected with using ML techniques in HEP and Astro analyses

Mon	Tues	Wed	Thurs
	9.00 Welcome <b>9.15 ML in PP KASIECZKA</b> 10.00 #5 Transformers for HEP, Spinner	9.00 ML BALDI (Remote) 9.45 Benchmarks Thiyagalingam 10.10 #73 Weak Lensing, Autenrieth	9.00 Mis-Modelling: HELD 9.45 #53 Bayesian evidence, Polanska
	10.30 Coffee	10.35 Coffee	10.15 Coffee
	<b>11.00 ML in A/C WANDEL (Remote)</b> 11.45 Gr Waves DAX	11.00 SBI GHOSH 11.45 Unfolding MIKUNI	Continuation of Interp 10.45 Kuusela 11.15 Peiris 11.45 Eller 12.10 Golling
	12.30 Lunch	12.30 Lunch/Poster session	12.35 Lunch
<b>2.00 Astro/Cosmo for others TSAPRAZI</b> <b>2.25 Part Phys for others WINTERBOTTOM</b> <b>3.00 ML MAKINEN</b>	2.00 Interpretability THALER 2.45 Anomaly session ZHANG	2.00 Unfolding Plehn 2.25 #79 Linear SBI, Handley 2.50 Decorrelation Chakravarti 3.15 Generative WINTERHALDER	2.00 Highlights LOUPPE 2.45 Highlights KUUSELA
3.45 Coffee	3.30 Coffee	4.00 Coffee	3.30 Coffee
<b>4.15 Types of ML in Astro/Cosmo JEFFREY</b> <b>4.55 Types of ML for Part Phys LANGFORD</b> <b>5.35 End</b>	Anomaly Session, cont 4.00 GROSSO 4.45 Aarrestad 5.10 #74 Anom-aware ML for DM, Scaffidi 5.35 #51 Feldman-Cousins, Villarreal 6.00-7.15 Poster Session/Drinks	4.30 #67 Fairness, Rieger 4.55 Systematics CRANMER (Remote) 5.40 #54 Syst-aware NN, Monsch 6.05 End  7.00 for 7.30 Dinner at Ognisko	4.00 Highlights LUCIE-SMITH 4.45 Highlights HEINRICH 5.30 Closing Discussion

Themes: **Optional Talks**    **Range of ML**    **Interpretability**  
**Anomaly session**    **Highlights**    **Poster Session**

ABSTRACTS as CONTRIBUTED TALKS:

These 8 are shown with their Abstract number e.g. #5

# Apart from lectures.....

Poster session/Welcome Drinks (Monday) and

Poster session/ Wednesday lunch

Lunches other days

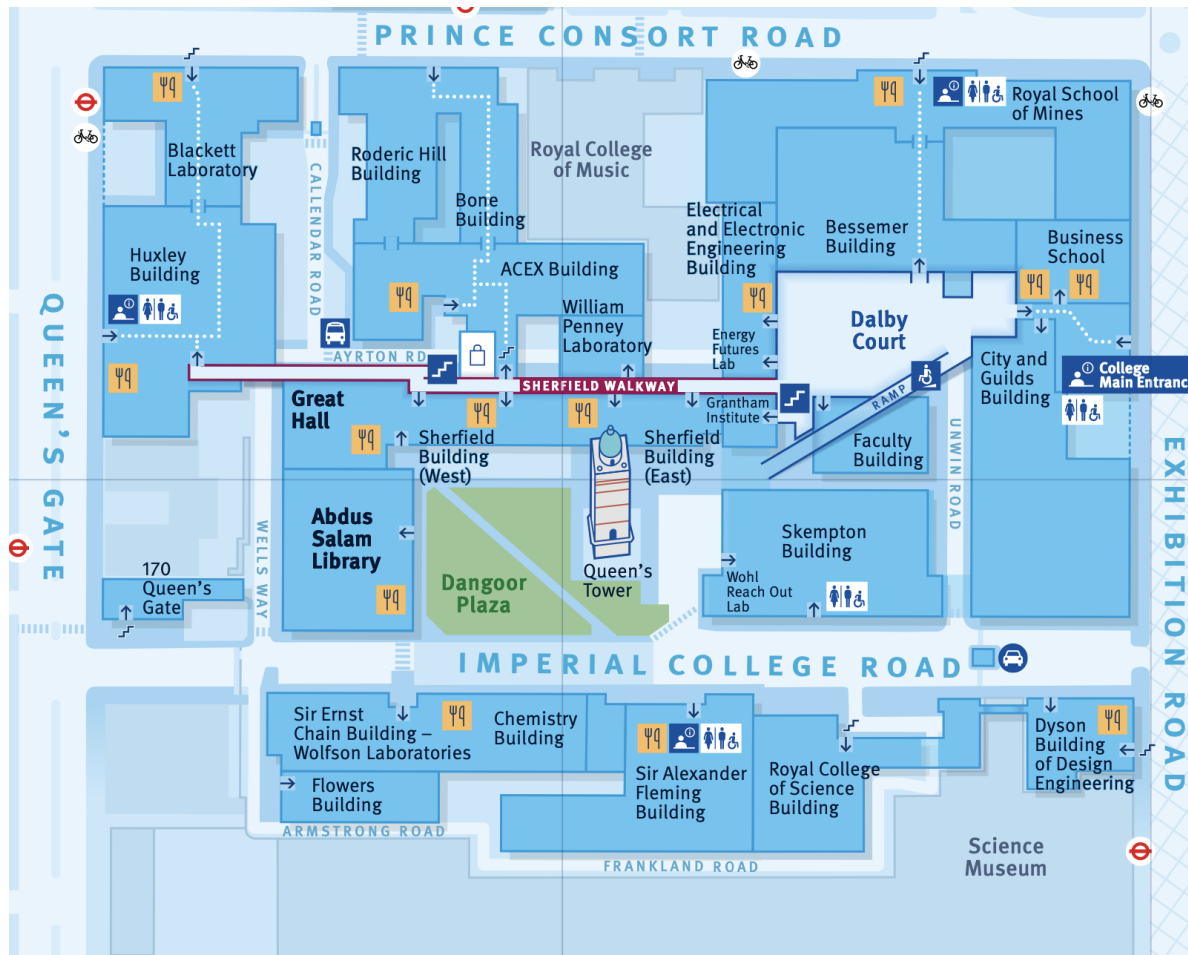
Coffee breaks

Dinner at Ognisko, Wednesday 7pm

**Wear badges for entry.**

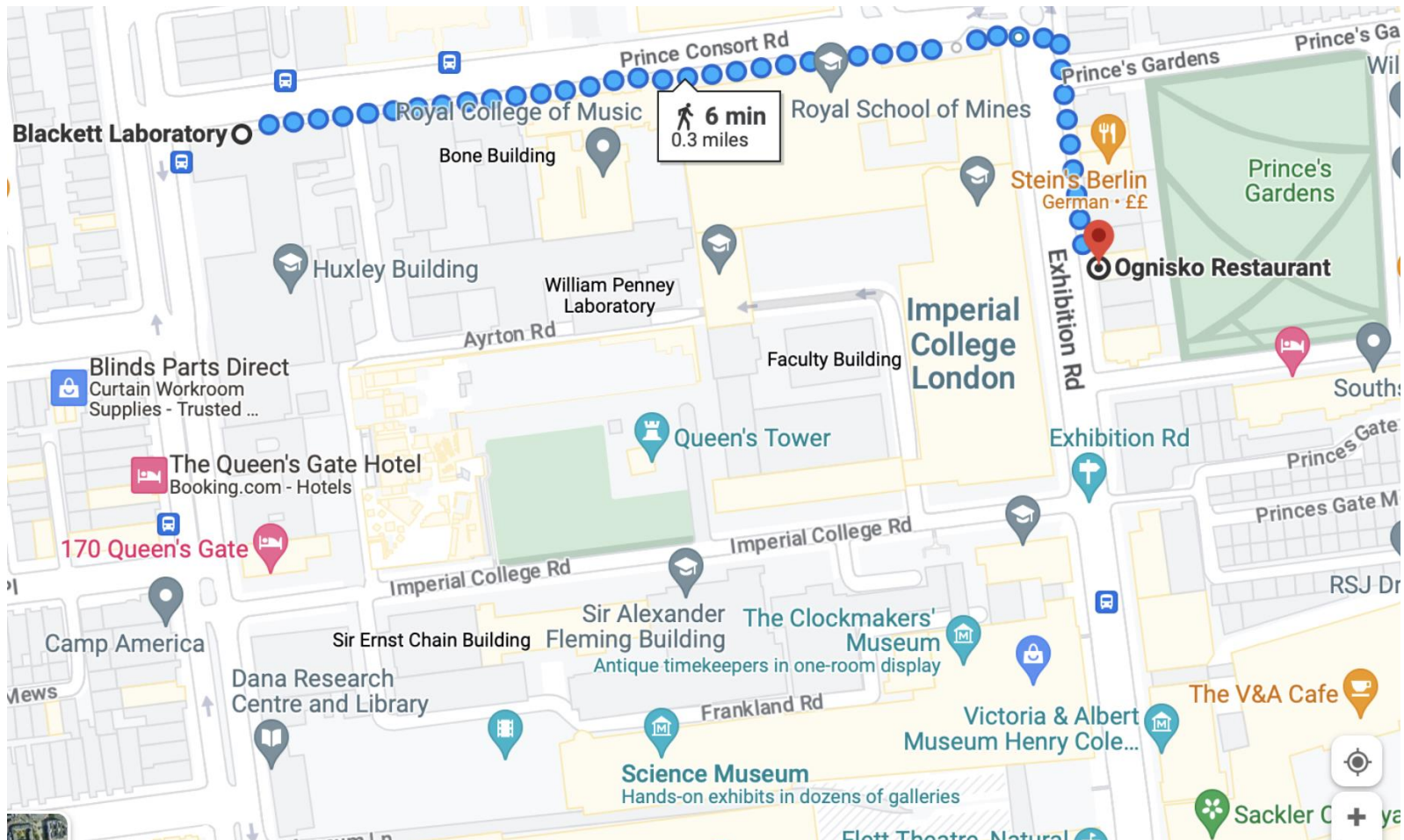
World Scientific Publishing stand (Arja and Leigh)

# Route to Lunch locations at Imperial



# Route to Dinner at Ognisko

## 55 Exhibition Rd



# Practical Info

<https://indico.cern.ch/event/1407421/page/33592-social-programme-practical-information>

What to do in neighbourhood: Parks, Museums, Albert Hall, .....

Eating in Imperial (lunchtime) or nearby

London transport

Leaving cases: Room 521

Mattermost

Zoom: <https://cern.zoom.us/j/62711864233?pwd=ix1gZYHWUydmgoYF2DRftA0cKl71nA.1>

Connecting your computer: Use Wifi with eduroam, or ask us for a guest account

# More Practical Info

Help:

LOC and AV helpers (identifiable by pink bands for badges)

Administrative office 542

Emergency 24 hour Imperial security number:

020 75891000

Emergency fire briefing - in the event of a fire alarm please follow the emergency exit signs to leave the lecture theatre. The Assembly Point is on the Corner of Exhibition Road and Imperial College Road.

Toilets: Next to lifts on each floor



# THANK YOU

## IMPERIAL

LOC: Rob Bainbridge, (Chair), Matteo Agostini, Sunita Aubeeluck, Paula Consiglio, Jon Langford, Benedict Maier, Lucas Makinen, Marvin Pfaff, Nick Wardle, Danny Winterbottom

## PROGRAMME COMMITTEE

## SPONSORS:

- Institute for Particle Physics Phenomenology, Durham (IPPP)
- Science and Technology Facilities Council's High Energy Physics branch (STFC HEP)
- Science and Technology Facilities Council's Computing branch
- Imperial College's Particle Physics Community
- Imperial College's Centre for Inference and Cosmology
- Institute of Physics' High Energy Particle Physics and Astroparticle groups
- World Scientific Publishing
  
- ALL OF YOU: For coming

Enjoy the meeting