

Space Charge 2026

7th ICFA Beam Dynamics Mini-workshop

Chairs: Adrian Oeftiger and Shinji Machida



UNIVERSITY OF
OXFORD

30 September to 2 October 2026

DEPARTMENT OF
PHYSICS



Science and
Technology
Facilities Council

ISIS Neutron and
Muon Source

You are on level 5. Toilets are on levels 4 + 6. Emergency exit via central stairs.

EMERGENCY EVACUATION WARNING

Alarm will sound continuously (fire) or intermittently (other emergencies).

EVACUATION PROCEDURE

- ▶ Use the nearest available exit: level 4 (or 3) via the central staircase.
- ▶ Do not use lifts.
- ▶ Leave the building and proceed to assembly point downstairs outside.
- ▶ Do not stop to collect personal belongings.
- ▶ Do not re-enter the building until authorised to do so.

FIRST AID

The department has a team of trained first aiders. If you feel unwell or are injured, please call a first aider for assistance (first aider lists may be found by first aid boxes or on safety noticeboards). First aid assistance out of hours is available from the University Security Service, Tel. 89999.

Chairs: Adrian Oeftiger (University of Oxford)
Shinji Machida (STFC ISIS)

Workshop Admin: Kim Proudfoot
Julieta Estremadoyro-Vermejo

Programme Committee:

Adelmann, Andreas (PSI)	Thomas Planche (TRIUMF)
Foteini Asvesta (CERN)	Ji Qiang (LBNL)
Michael Blaskiewicz (BNL)	Kiersten Ruisard (ORNL)
Nicholas Evans (ORNL)	Yoichi Sato (J-PARC/KEK)
Giuliano Franchetti (GSI)	Guodong Shen (IMP/HIAF)
Elias Métral (CERN)	Giulio Stancari (FNAL)
Hiroki Okuno (RIKEN)	Rob Williamson (STFC/RAL)
Yannis Papaphilippou (CERN)	Yaoshuo Yuan (CSNS)

With thanks to our sponsors and supporters



ISIS Neutron and Muon Source



We gratefully acknowledge their support in making Space Charge 2026 possible, including waiving registration fees for 8 students.

The history of the Space Charge Mini-workshop Series:

SPACE CHARGE 2013

Chair: G. Franchetti, F. Schmidt
Workshop Secretary: D. Rivoiron

International Advisory Committee

Y. Alexahin	FNAL
O. Boine-Frankenheim	TUD/GSI
I. Hofmann	GSI / HI-Jena
J. Holmes	SNS
S. Machida	RAL
E. Metral	CERN
K. Ohmi	KEK
J. Qiang	LBL
F. Zimmermann	CERN

TOPICS

- Modeling of machines: lattice including nonlinearities and errors.
- Modeling space charge effects.
- Benchmarking space charge codes both self-consistent and frozen model.
- Benchmarking codes with experiments.
- State of the art techniques to understand machines with regards to space charge combined with nonlinearities.

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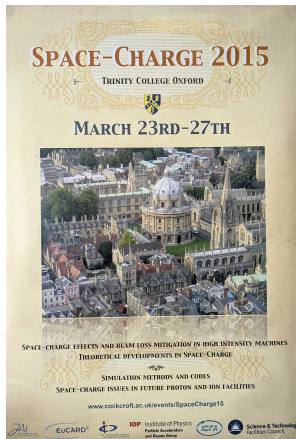
EuCARD
ICFA
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SPACE CHARGE 2013 web page

CERN, April 16-19, 2013



The history of the Space Charge Mini-workshop Series:





SPACE CHARGE 2017

Chairs: O. Boine-Frankenheim, G. Franchetti
 Secretary: P. Lindenberger (p.lindenberger@gsi.de)
 4-6 October 2017, TUD, Darmstadt

International Advisory Committee

M. Bai	GSI
B. Beaudoin	UMD
Y.-H. Chin	KEK
J. Hoffmann	TUD/GSI
J. Knie	ORNL
A. Lombardi	CERN
D.-Q. Joch	JBS
S. Machida	RIAC
F. Schmidt	CERN
J.-L. Vay	LBNL
S. Webb	Radiasoft
H. Zeng	IMB/APS/HIAP

<http://indico.esa.de/conferenceDisplay.cgi?confId=5800>

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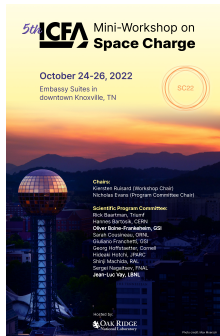


The history of the Space Charge Mini-workshop Series:

Space Charge 2019
CERN 4-6 Nov



The history of the Space Charge Mini-workshop Series:



The history of the Space Charge Mini-workshop Series:



This year sees a record interest in Space Charge with 81 attendees!

Space Charge 2026
7th **ICFA** Beam Dynamics Mini-Workshop

Workshop Chairs:
Adrian Oeftiger, Oxford Uni
Shinji Machida, ISIS - STFC

Programme Committee:
Andreas Adelmann, PSI
Michael Stankiewicz, BNL
Nicholas Evans, ORNL
Giuliano Franchetti, GSI
Elena Metcal, CERN
Hiroki Ozawa, RIKEN
Thomas Planche, TRIUMF
Ji Qiang, LBNL
Kiersten Ruiland, ORNL
Yoshi Sato, JPARC - KEK
Guodong Shen, IMP - HIAF
Giulio Stancari, FNAL
Rob Williamson, ISIS - STFC
Yanshuo Yuan, CNS

Workshop Administration:
Juliet Estremadoyro-Vermejo
Kim Proudfoot

30 September - 2 October
Dennis Sciama Lecture Theatre,
Denys Wilkinson Building,
Physics Department, University of Oxford

Accommodation at Trinity College

ISIS Neutron and Muon Source

ICFA Beam Dynamics Mini-Workshop

INP Institute of Physics
Particle Accelerators
and Beams Group

UNIVERSITY OF OXFORD



Identified key topics around 3 themes during survey in late 2025:

A. Experiments and Operational Considerations

B. Machine Design & Numerical Modelling of Beam Dynamics

C. Open Topics in Space-Charge Beam Physics

Identified key topics around 3 themes during survey in late 2025:

A. Experiments and Operational Considerations

A-1: Performance Review of Space-Charge-Limited Facilities

Session Chair: Foteini Asvesta (CERN)

A-2: Space-Charge Measurement and Compensation Studies

Session Chair: Giulio Stancari (FNAL)

A-3: Injection, Painting, Beam Splitting and Equilibrium Distributions

Session Chair: Austin Hoover (ORNL)

A-4: Beam Loss and Halo Dynamics

Session Chair: Yoichi Sato (J-PARC/KEK)

Identified key topics around 3 themes during survey in late 2025:

B. Machine Design & Numerical Modelling of Beam Dynamics

B-1: High-Intensity Linacs

Session Chair: Hiroki Okuno (RIKEN)

B-2: Benchmarking and Experiments

Session Chair: Kiersten Ruisard (ORNL)

B-3: Space-Charge Modelling

Session Chair: Ji Qiang (LBNL)

B-4: High-Intensity Ring Design

Session Chair: Rob Williamson (ISIS)

Identified key topics around 3 themes during survey in late 2025:

C. Open Topics in Space-Charge Beam Physics

C-1: Resonances and Space Charge

Session Chair: Giuliano Franchetti (GSI)

C-2: Instabilities and Space Charge

Session Chair: Adrian Oeftiger (University of Oxford)

C-3: New Concepts

Session Chair: Elias Métral (CERN)

- ▶ Sessions organised by Session Chairs:
 - ▶ Lead talk + up to 4 invited contributions
 - ▶ **25 min discussion time:** contribute/present ideas/ask questions

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- ▶ breaks in the Foyer and Fisher Room
 - ▶ coffee/tea served in both Foyer and outside Fisher Room
 - ▶ lunches served in Foyer
 - ▶ Posters are set up in Fisher Room!

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- ▶ **180-Second Challenge** and Poster Session: Wednesday pm
 - ▶ poster presenters give a flash talk in research-slam format – one slide, 180seconds, one goal: spark curiosity & start discussions
 - ▶ 1 h with 16 presenters
 - ▶ poster session follows with refreshments and drinks served
- ▶ **Banquet** on Thursday evening, see later
- ▶ Workshop concludes on Friday 17:30

Space Charge 2026, 7th ICFA BD Mini-workshop

29 September 2026 to 3 October 2026
Oxford University, Physics Department
Europe/London timezone

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 ppadmin@physics.ox.ac.uk
Local Information

Workshop Venue

The **workshop** will entirely take place in the Dennis Sciama Lecture Theatre on Level 5 in the Denys Wilkinson Building (DWB), Keble Road, Oxford OX1 3RH – Google Maps [link here](#).

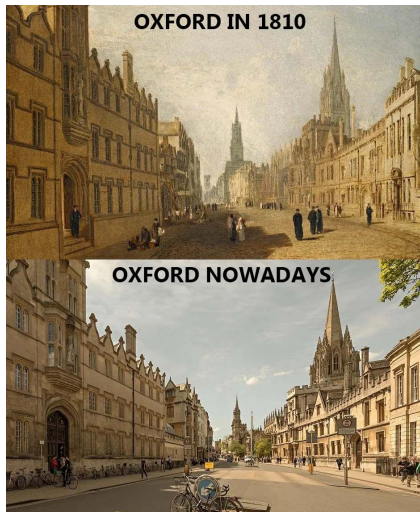
The **banquet** will take place at Trinity College at less than a 10-min walking distance from the DWB, in Broad Street, Oxford OX1 3BH – Google Maps [link here](#).

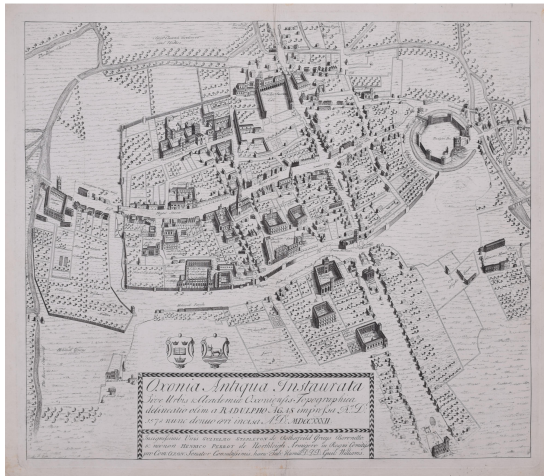
Restaurants

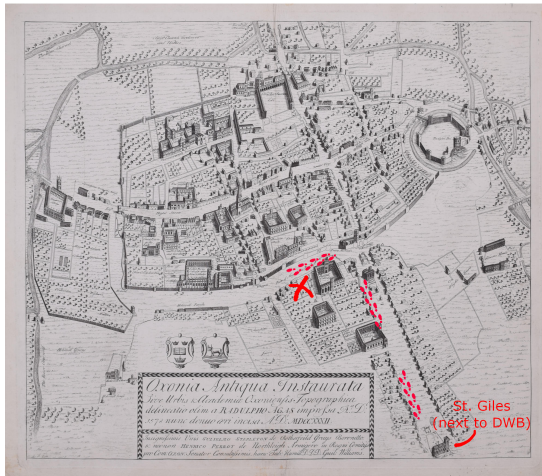
We are happy to share some restaurant recommendations by long-standing Colleagues:

- Indian: [The Standard](#), 117 Walton St
- Italian: [Mamma Mia](#), 102 Walton St
- Italian: [Pizza Express](#), The Golden Cross, 8, national chain, but reliable
- Thai: [Chian Mai kitchen](#), 130A High St, nice setting and good food, can be crowded so book ahead
- Thai: [Old Tom Pub](#), 101 St. Aldate's, yes, Thai in a pub setting...
- Pub: [The Royal Oak](#), 42-44 Woodstock Rd, a favourite of people from the Department, close and good
- Pub: [The King's Arms](#), 40 Holywell St, an Oxford classic, featured in many movies
- Pub: [The Turf Tavern](#), 4 Bath Pl, hard to find, you need to access through alleyways, but authentic
- Pub: [Lamb & Flag](#), 12 St Giles', where J.R.R. Tolkien and C.S. Lewis hung out, but sadly they have no food
- Jamaican: [Turtle Bay](#), 12 Friars Entry, spicy and good cocktails (2 for 1), can be busy
- Chinese: [Three Thousand Restaurant](#), 6-8 St Michael's St, all kinds of noodles, setting is more casual, but the food is excellent
- Afternoon Tea: [The Parsonage](#), 1-3 Banbury Rd – you won't have time, but if you are staying on... right next to the department, best cream tea in Oxford
- Coffee close by: [Tree Artisan Cafe](#), 3 Little Clarendon St
- Coffee close by: [Gail's Bakery](#), 21-22 Little Clarendon St
- Several options in [Covered Market](#), a more than 250-year old indoor bazaar, Market St
- More pricey: [The Cherwell Boathouse](#), Bardwell Rd, upmarket, nice setting on the river, in the summer you could rent a boat for punting...
- For the more adventurous: Cowley Rd has many good restaurants, but is a little further away.

But there are many, many more for you to explore.







Workshop dinner banquet on Thursday evening:

- ▶ 10-min walk to Trinity College, South from DWB
- ▶ 18:30 Reception in Garden Room
- ▶ 19:00 Workshop Group Photo
- ▶ 19:30 Dinner in Historic Dining Hall



If booked, meet outside DWB on Saturday at 8:40am (Photo ID!)

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29 September 2026 to 3 October 2026
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Overview

Important Dates

Timetable

Contributions: Talks and Posters

Scientific Programme:
Session Topics

RAL Visit (Saturday)

Book of Abstracts

Participant List

Contribution List

My Conference

My Contributions

Registration

Programme Committee

Visa/UK Entry
Information

Local Information

Workshop Support

✉ ppadmin@physics.ox.ac.uk

RAL Visit (Saturday)

[Please bring your **Photo ID (passport)** if you participate in the RAL tour.]

On Saturday 3rd October a visit to the Rutherford Appleton Lab in South Oxfordshire, and in particular to the ISIS Neutron and Muon Source and Extreme Photonics Applications Centre (EPAC), will be organised.

08:40: Passport check for RAL entry. Meet in front of Oxford University Physics Department, Denys Wilkinson Building (DWB), Keble Road Oxford OX1 3RH. Google Maps link: <https://maps.app.goo.gl/4JA4254uZ26ZWky9>

09:00: Departure by coach.

09:30: Arrive at RAL, R80 CR16 and CR17 meeting room and short introduction of the tour.

10:00: Tour starts with groups of 10, departing to each place separately.

- IBEX and FETS: Paul trap experiment and Front End Test Stand of 3 MeV RFQ
- MEBT: Medium Energy Beam Transport test stand
- FFA magnet: FFA magnet prototype
- ISIS: Target station area (no access to accelerator because of user run)
- EPAC: Laser driven acceleration

12:30: Return to Oxford by coach.

13:30-14:00 Arrival at DWB in Oxford after having passed by Didcot Parkway Station and Oxford Station.

Please note the schedule may change.

What should a future high-intensity accelerator look like?

Understand

- ▶ Experiments & operation
- ▶ Beam loss, halo, resonances, instabilities
- ▶ What ultimately limits us?

Predict & Design

- ▶ Modelling & benchmarking
- ▶ Injection, distributions, compensation
- ▶ How reliably can we design for intensity?

Look Beyond

- ▶ New concepts & approaches
- ▶ Lessons across facilities
- ▶ What should we do differently next time?

Throughout the workshop: What have we learned — and how should it shape the next generation of machines?

An aerial photograph of Christ Church in Oxford, England, taken at dusk. The central focus is the large, circular library with its prominent dome, which is illuminated from within. The building is surrounded by other historic stone buildings of the church, with their windows also glowing. The sky is a clear, deep blue. The overall scene is peaceful and historic.

Welcome to Space Charge 2026 in Oxford!

*Let's make it a workshop in the true sense of the word —
discuss, exchange, and explore!*