Atomic and Molecular Data Needs for Plasma Applications

Sponsored jointly by High End Computing (HEC) Consortium, UK-AMOR and Collaborative Computational Projects CCPQ and CCP-Plasma

13th - 15th April 2021

Engineering and Physical Sciences Research Council

Science and Technology Facilities Council

UK Collaborative Computational Projects

Welcome!

Organisers:

- Georgia Lomas
- Martin Plummer
- Jonathan Tennyson
- Colin Roach
- Ben Dudson

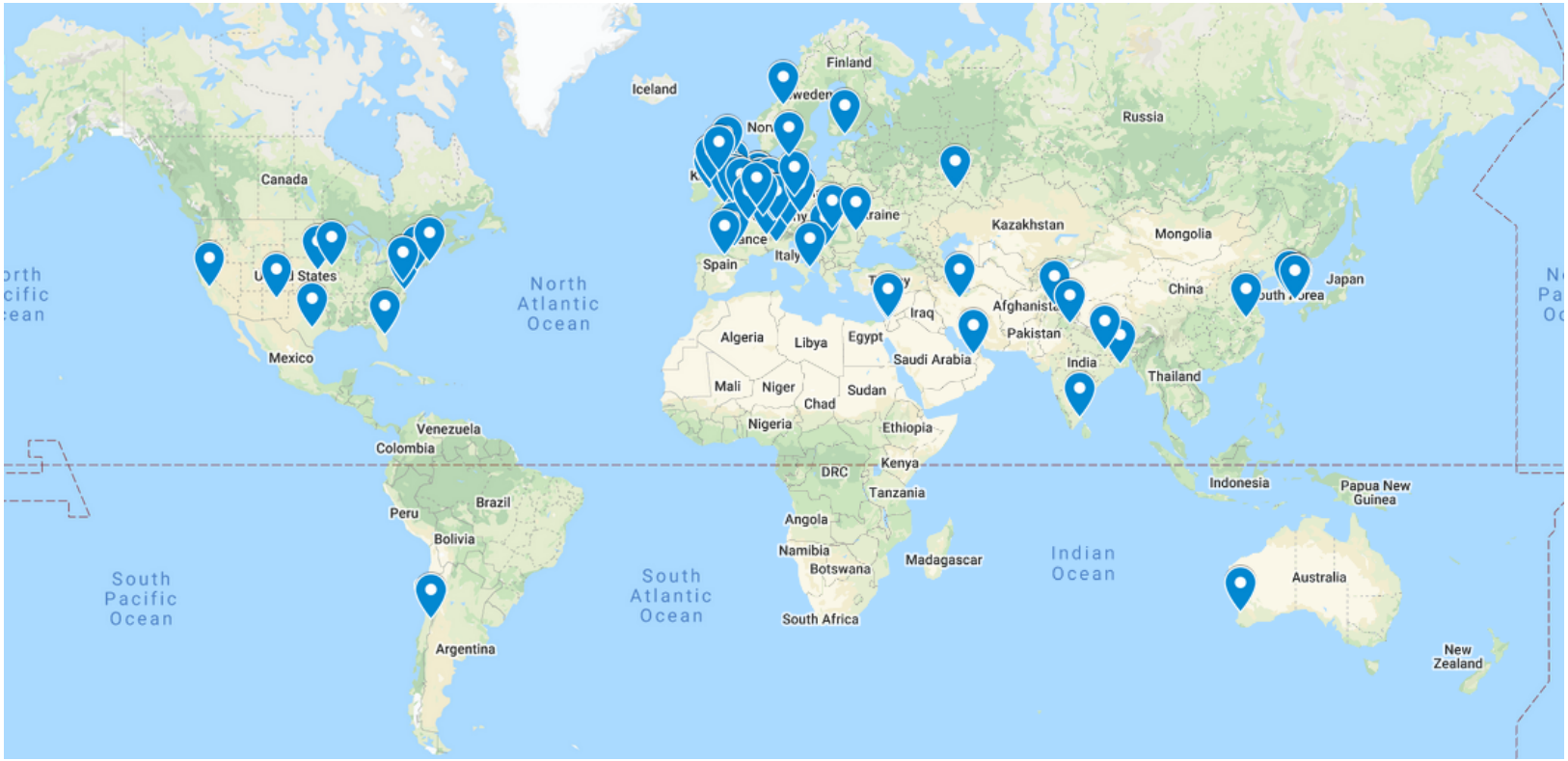
Session chairs:

- Deborah O'Connell
- Martin O'Mullane

Speakers and poster presenters

Thank you!

160 people registered, >67 universities, labs and companies



Agenda

Tuesday 13th	Wednesday 14th	Thursday 15th
13:00 – 15:10 Session 1 **Applications Overview** Chair: Ben Dudson	10:00 – 11:00 **Poster session**	9:00 – 10:00 **Demonstration of Quantemol tools**
15:10 – 15:20 **Coffee break**	11:00 – 12:00 **Group discussion: Fusion**	10:00 – 11:00 **Group discussion: Datasets**
15:20 – 16:50 **Spectroscopy and uncertainties for fusion** Chair: Deborah O'Connell	13:00 – 15:00 **Spectroscopy and uncertainties for fusion** Chair: Colin Roach	11:00 – 12:00 **Group discussion: LTP**
16:50 – 17:10 **Lightning session** (poster introductions) Chair: Colin Roach	15:10 – 17:20 **Atomic and molecular physics calculations** Chair: Martin Plummer	13:00 – 15:00 **Atomic and Molecular Applications** Chair: Martin O'Mullane
	Coffee break	15:10 – 17:10 **Industry and ExCalibur** Chair: Jonathan Tennyson

All times UK (BST, UTC + 1)

Posters and Lightning talks

- 15 posters

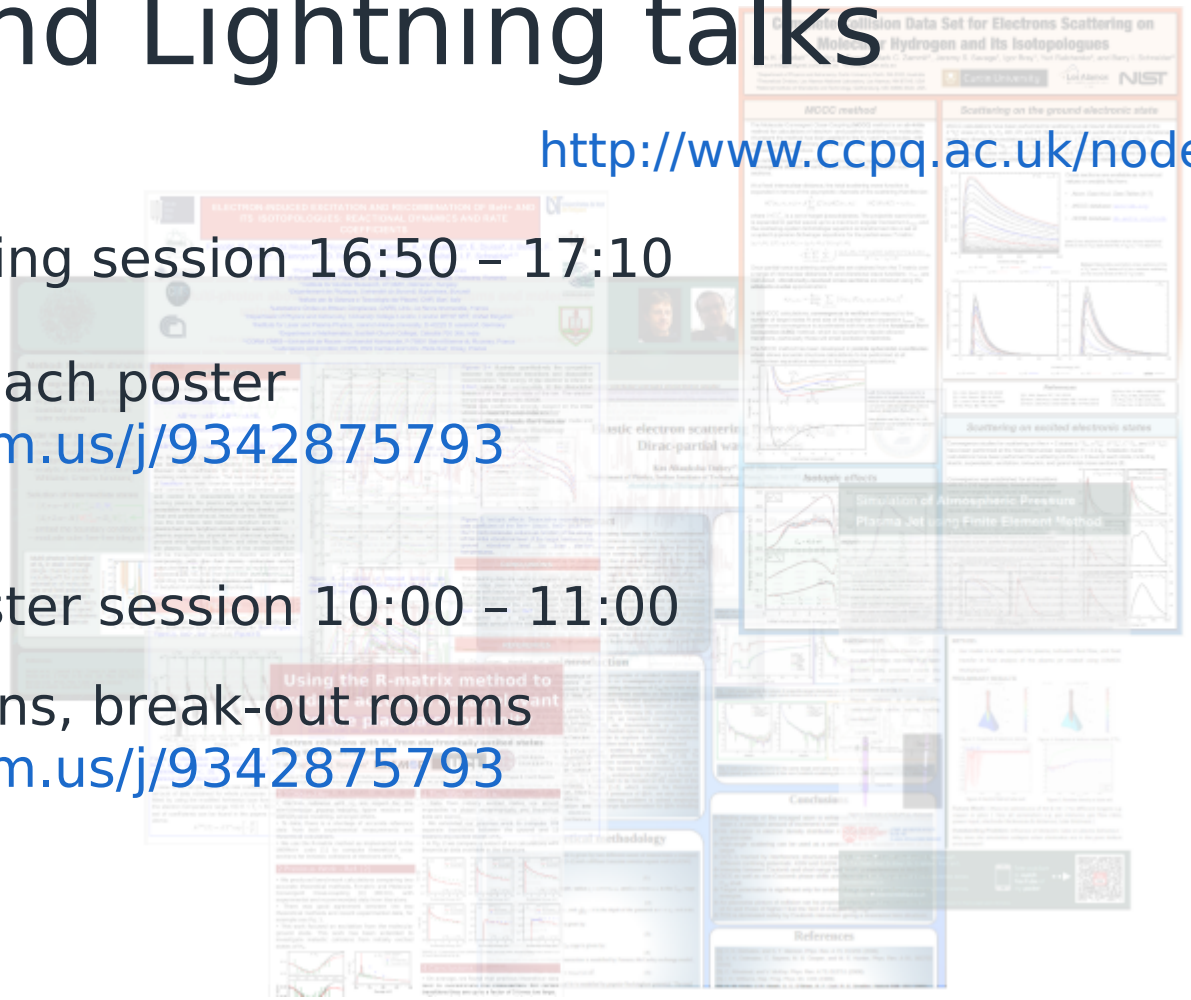
http://www.ccpq.ac.uk/node/24

- **Today**: Lightning session 16:50 – 17:10

  Short talks on each poster
  https://ukri.zoom.us/j/9342875793

- **Tomorrow**: Poster session 10:00 – 11:00

  Zoom discussions, break-out rooms
  https://ukri.zoom.us/j/9342875793



Talk sessions

- **Speakers** should share their screens to present
- **Zoom** sessions will be open 30 minutes before start time
- **Talks** will be recorded unless requested otherwise (**)
- **Questions** can be asked in the Q&A tab, or by raising a hand
- **Chairs** will keep to time, allow people to unmute themselves

Today

	Session 1: Applications overview **Chair: Ben Dudson**
13:00-13:10	**Welcome:** overview by Ben Dudson (York University)
13:10-13:40	Fulvio Militello (CCFE) **Alternative divertor concepts and the modelling requirements/results in terms of detachment physics, power and particle loads and pumping**
13:40-14:10	Andrew Gibson (Ruhr University of Bochum) **An overview of electron impact cross section requirements for low temperature plasma modelling**
14:10-14:40	Nigel Mason (University of Kent) **Electron interactions with atoms, molecules, clusters an surfaces - what we know and what we need to know for next generation plasma technologies physics**
14:40-15:10	Deborah OConnell (Dublin City University) **The importance of vibrational excitation in nitrogen plasmas**
15:10-15:20	**Coffee/comfort break**

	Session 2: Spectroscopy and uncertainties for fusion **Chair: Deborah OConnell**
15:20-15:50	Connor Balance (Queen's University Belfast) **Interfacing atomic structure and collisional calculations with plasma diagnostics and modelling codes**
15:50-16:20	Kevin Verhaegh (CCFE and York University) **Experimental investigation of the role of plasma-atom/molecule interactions on power, particle and momentum balance in tokamak power exhaust**
16:20-16:50	Martin O'Mullane (CCFE and Strathclyde University) **Uncertainty estimation and integration of data into large scale modelling codes**
16:50-17:10	**Lightning session: brief introductions to the posters**