

The CarbonRecycling Network is delighted to announce that it will be delivering a:

# METABOLIC MODELLING WORKSHOP

**9<sup>th</sup> December 2024 – 13<sup>th</sup> December 2024**

Redirecting an organism's metabolism towards novel products raises several design issues. What is the impact of the new pathway on the cell's energy and redox metabolism? Can the precursor and coenzyme requirements be satisfied? Should some parts of the metabolic network be blocked off to ensure the most efficient routes to the product are favoured? Answering these questions needs tools that can compute and compare feasible routes through the cell's metabolic network, as well as methods for defining and representing the metabolic network in a way the tools can use. This is the domain of structural analysis of metabolism, and techniques such as elementary modes analysis and flux balance analysis. This combined theoretical and practical course will explain the theory behind these techniques and give hands-on experience of calculating feasible and optimal routes through metabolic networks.

The course will be delivered by Dr Mark Poolman and his colleagues in the Cell Systems Modelling Group at Oxford Brookes University.

## **Details**

- **What: Free participation**, accommodation (for non-local delegates) and meals for 4 days and 4 nights (starting with lunch Monday 9<sup>th</sup> and ending with lunch on Friday 13<sup>th</sup>).
- **When:** Arrival **Monday 9 December** with registration in the morning and workshop commencing after lunch on Monday at 2pm. The workshop concludes with lunch on **Friday 13 December**
- **Where:** [The Jubilee Hotel & Conferences](#) triumph Road, Jubilee Conference Centre, Nottingham, NG7 2TU

## **Information about the Workshop**

### **What topics and techniques will be covered?**

1. Motivations for and applications of metabolic modelling
2. Basic theory underlying all modelling approaches.

3. Brief intro to the Python Programming language
4. Specific techniques including null-space analysis and linear programming
5. Principles of model construction
6. Examples of modelling in practice
7. Practical exercises (~50% of total time)

### **Would the workshop require any previous experience?**

No specific metabolic modelling experience is required, a reasonable (graduate) level knowledge of metabolism biochemistry or background knowledge of maths or computing would be useful.

### **Who is the workshop aimed at?**

Post graduate scientists who wish to develop strategies for modifying and/or understanding metabolism.

### **How to apply –**

Attendance is by application which needs to be submitted by **THURSDAY 31 OCTOBER 2024 – 4PM.**

The workshop is only open to signed-up members of the Carbon Recycling Network or signed-up members of one of the other UKRI-BBSRC NIBBs. Successful applicants will be notified by **FRIDAY 8 NOVEMBER 2024.**

### **FOR MORE DETAILS AND APPLICATION FORM:**

[https://carbonrecycling.net/wp-content/uploads/2024/08/Carbon-Recycling-Network\\_Modelling-Workshop-application\\_2024.doc](https://carbonrecycling.net/wp-content/uploads/2024/08/Carbon-Recycling-Network_Modelling-Workshop-application_2024.doc)

Contact the Carbon Recycling Network Manager: Dr Alan Burbidge  
[alan.burbidge@nottingham.ac.uk](mailto:alan.burbidge@nottingham.ac.uk)

Participants are required to bring their own laptop, but software will be provided.

**Open to the Carbon Recycling Network and other BBSRC NIBB members only – [Join Today](#)**