

3rd NeuroML Development Workshop

*Organizers : Padraig Gleeson, Matteo Farinella, Eugenio Piasini,
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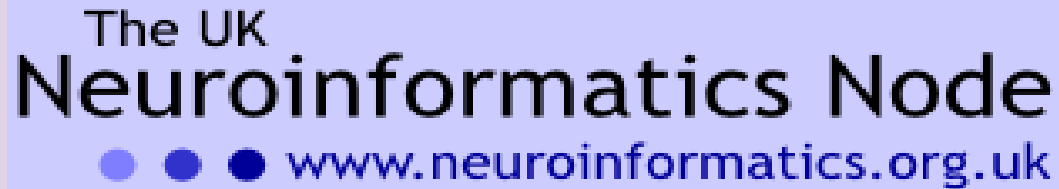
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The UK
Neuroinformatics Node
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**This meeting was supported by funding from
the UK Neuroinformatics Node.**

The UK Node is funded by MRC, EPSRC, BBSRC; its remit is to support and develop the UK neuroinformatics research community.

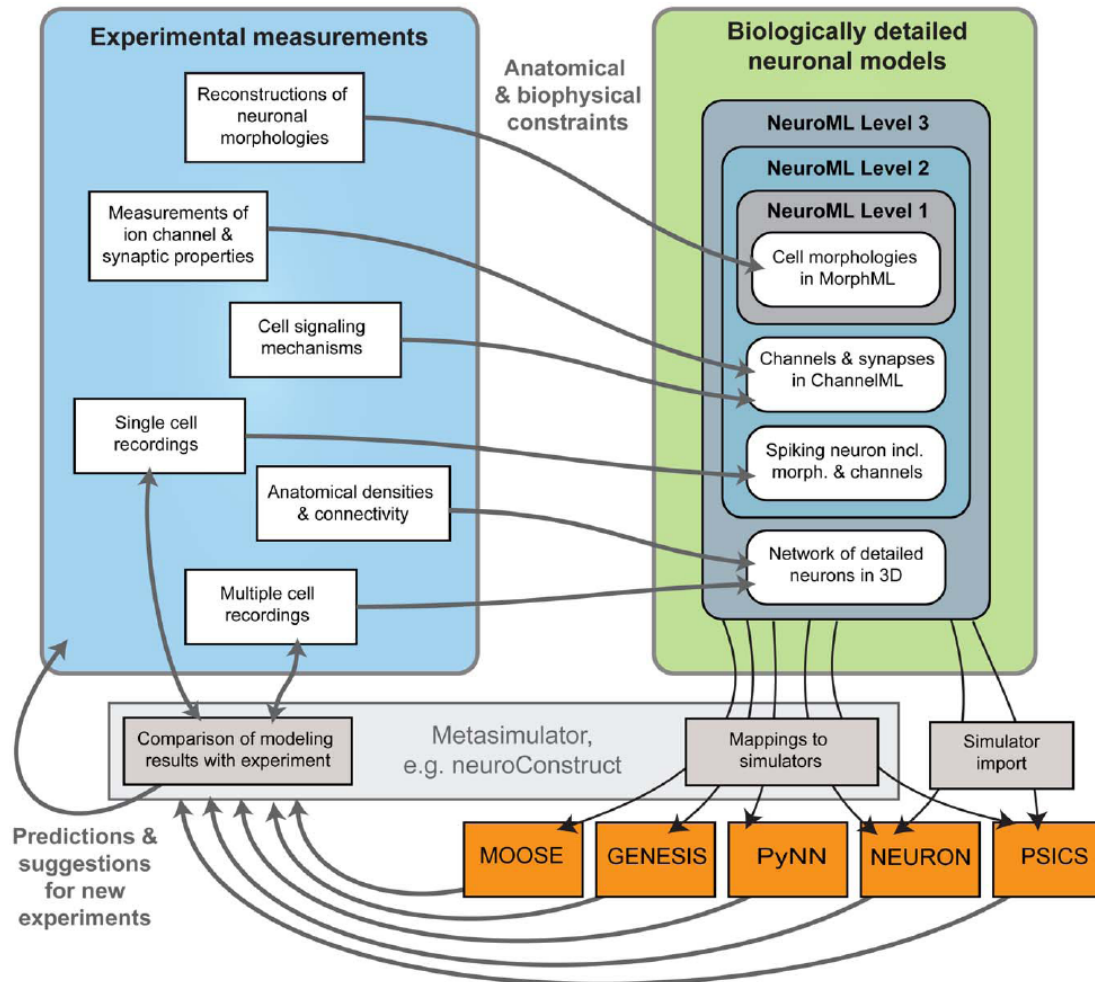
The UK Node is part of the INCF, an international organisation which facilitates neuroinformatics worldwide (www.incf.org).

The UK Node organises neuroinformatics events for the community as well as supporting small workshops and exchange visits.

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www.neuroinformatics.org.uk

NeuroML v1.8 a simulator-independent language for defining data-driven conductance based neuronal models



NeuroML: A Language for Describing Data Driven Models of Neurons and Networks with a High Degree of Biological Detail. Padraig Gleeson, Sharon Crook, Robert C. Cannon, Michael L. Hines, Guy O. Billings, Matteo Farinella, Thomas M. Morse, Andrew P. Davison, Subhasis Ray, Upinder S. Bhalla, Simon R. Barnes, Yoana D. Dimitrova, R. Angus Silver. *PLoSComput Biol.* 2010 Jun 17;6(6):e1000815.



NeuroML:New developments

- 17+ applications are now NeuroML compliant – several featured in talks.
- Development of new models in NeuroML – Thalamocortical model, Golgi cell network model.
- Bidirectional links between models ModelDB and NeuroML.org
- Significant progress in the development of NeuroML v2.0 using underlying LEMS (Low Entropy Model Specification) framework.



Aims of 3rd NeuroML meeting

- Demonstrate the present state of NeuroML v2.0 and get feedback on design / functionality for your application.
- Identify areas that need to be changed/developed further?
- What should be the scope of NeuroML v2.0? Relationship to other *ML's &Py*'s and the INCF?
- Morphology: Are we ready for the connectomics data deluge?
- Synapses: Do we have the flexibility to implement the most advanced quantal descriptions and plasticity models? Reaction-diffusion?
- Networks: what are the requirements for compact network descriptions? How best to deal with non-uniqueness and families of models?
- Formalization of NeuroML v2.0 specification – what structure should we have? What can we learn from SBML?

