

Imperial College London Activity Report



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<http://mrg.doc.ic.ac.uk>

Members

➤ Current Members

➤ Post-doc Laura Bocchi, Raymond Hu, Julien Lauge

➤ Phd students Rумыana Neykova, Nicholas Ng,
Weizhen Yang

➤ Past Members Romain Demangeon (Paris 6),
Luca Fossati (Cambridge), Tzu-Chun Chen (Torino)

➤ New Members (from February 2014)

Tiago Cogumbreiro (Pre-doc), Juliana Franco (PhD)

Awards

- ETAPS Award to Kohei Honda: mrg.doc.ic.ac.uk/kohei.html
- The Kohei Honda Prize for Distributed Systems at Queen Mary, University of London (Robinson and Sassone's tribute will appear in EATCS Feb 2014 issue: mrg.doc.ic.ac.uk/kohei/qmul-prize/)
- Raymond Hu, EPSRC Knowledge Transfer at Cognizant, 1st March 2013– 28th February 2014
- Dimitrios Kouzapas, EPSRC Doctal Fellowship, 1st June 2014–31st May 2015 at Imperial College London
- Google Poster Award, Nicholas Ng
- London Hopper Poster Award, Romyana Neykova

Invited Talks and Tutorials

- Cambridge Theory Seminar, with **Raymond Hu** (June 2013)
- GALOP, London, Invited keynote talk (July 2013)
- Nova, Lisbon, Faculty talk (August 2013)
- TGC 2013, Buenos Aires, Invited keynote talk (August 2013)
- Pierre-Louis Curien 60th Birthday (September 2013)
- Birkbeck University, Department talk by **Laura Bocchi**
- Lisbon University, Lisbon, Department talk (November 2013)

Invited Talks and Tutorials

- POPL Tutorial (Jan 2014) by **Raymond Hu** with Vasconcelous
- Mathematical Structures of Computation, Lyon (February 2014)
- Open Problems in Concurrency Theory, Bertinoro, Invited talk (June 2014)
- Postdoctoral lectures, L'Aquila with Dezani (June 2014)
- Certification of high-level and low-level programs, Paris (July 2014)

Grants

- Ocean Observatories Initiative (finished on September 2013)
- EPSRC *Conversation-Based Governance for Distributed Systems by Multiparty Session Types*
- **SADEA** EPSRC *Exploiting Parallelism through Type Transformations for Hybrid Manycore Systems*, with Vanderbauwhede (GL), Scholz (Heriot Watt), Gay (GL) and Luk (IC)
- **EU FP7 FETOpenX** UpScale with de Boer (CWI), Clark, Wrigstad (Uppsala) Johnsen (Oslo), Drossopoulou (IC) (the 2nd best out of 385 submissions)
- VMware PhD funding

Daily Activities

- Mobility Reading Group (once a week)
- Scribble Meeting (once a week)
- Everybody Meeting (once a week)
- Visits to OOI (US) and Cognizant (London).
- Visitors: Steve Ross-Talbot, Amit Chopra (Lancaster), Marco Carbone (ITU), Tiago Cogumbreiro (Lisbon), Francesco Tiezzi (Florence), Romain Demangeon (Paris 6), Tzu-Chun Chen (Torino),...
- More visitors (at least 4 visitors) by Betty STSM/Upscale.

Editorial work

- EATCS Bulletin, the chief editor of the Computer-aided Verification and Concurrency column.
- Journal of Logical and Algebraic Methods in Programming, editor.

Publications

- ▶ Dynamic Monitoring (P1, P2, P4, P5)
 - Monitoring Networks through Multiparty Sessions [FORTE'13]
 - Session Types Go Dynamic or How to Verify Your Python Conversations [PLACES'13]
 - SPY: Local Verification of Global Protocols [RV'13]
 - Practical interruptible conversations: Distributed dynamic verification with session types and Python [RV'13]
- ▶ Scribble (P1, P2, P4)
 - Structuring Communication with Session Types [COB'12]
 - The Scribble Protocol Language [TGC'13]

- ▶ Parallel Computing (P1, P2, P4)
 - Towards deductive verification of MPI programs [PLACES'13]
 - Scalable session programming for heterogeneous high-performance systems [BEAT'13]
 - Pabble: Parameterised Scribble for Parallel Programming [PDP'14]
- ▶ Global Computing (P1, P4, P7)
 - Trustworthy Pervasive Healthcare Services via Multiparty Session Types [FHIES'12]
 - Compositional Choreographies [CONCUR'13]

➤ Theories (P1, P6, P7)

➤ Inference of Progress Typing [Coordination'13]

➤ Synthesis in Communicating Automata [ICALP'13]

➤ Governed Session Semantics [CONCUR'13]

➤ Resolving Non-determinism in Choreographies [ESOP'14]

by Bocchi, Melgratti and Tuosto

➤ On Asynchronous Eventful Session Semantics

[Math. Struct. Comp. Sci.]

➤ Global Progress in Multiparty Interleaved Sessions

[Math. Struct. Comp. Sci.]

➤ Global Escape in Multiparty Sessions [Math. Struct. Comp. Sci.]

Plans

- Collaborations with Industry Partners
- Multiparty Session Nets (P6,P7) and Timed Multiparty Session Types (P7)
- Stable Scribble (P1,P2,P4,P6)
- Synthesis of General Global Types (BPMN-Choreographies) (P6,P7)
- Code generations and parallel computing (P1,P2,P4)
- Actor extension and Middleware (P1,P3,P4)
- Collaborations with other academic partners (ED, GL), (HW, Uppsala, Oslo, CWI, IC)