

**Workshop in Honour of John Power
on the occasion of his 60th Birthday
@RIMS, Kyoto University**

23 December 2019

Happy 60th Birthday!

John was born in 23 December 1959.
Yes, today is his 60th birthday!



It is our great pleasure to organize this workshop in honour of John on the occasion of his 60th birthday at RIMS, where currently John is staying as a visiting professor (until the end of February 2020).

Introducing John Power

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John retired in August 2019 and returned to Australia. Now John is a honorary professor at [Macquarie University](#), Sydney.

John and Category Theory

John made substantial contributions to category theory, especially about (higher/enriched) categories with algebraic structure. Most influential papers include:

- Coherence for tricategories (with Gordon and Street)
- Two-dimensional monad theory (with Blackwell, Kelly)
- Adjunctions whose counits are coequalizers, and presentations of finitary enriched monads (with Kelly)
- Enriched Lawvere theories
- An n -categorical pasting theorem
- Pseudo-commutative monads and pseudo-closed 2-categories (with Hyland)
- On the structure of categories of coalgebras (with Johnstone, Tsujishita, Watanabe, Worell)
- On weak higher-dimensional categories (with Hermida and Makkai)

John and Computer Science

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Perhaps his most influential work are:

- **Premonoidal categories** (with Anderson, Robinson) and **Freyd categories** (with Thielecke, Levy)
- **Algebraic effects** (with Plotkin, Hyland, Levy)

They had great impact not only in theoretical side but also on programming languages practice: Freyd categories closely related to **arrow/loop** in Haskell, while algebraic effects led to the design and implementation of **effect handlers**

John and Computer Science

Indeed, there are much more:

- **Control structures** and action calculi
(with Mifsud, Milner, Hermida)
- **Bireflection** and syntactic control of interference
(with Freyd, O'Hearn, Street, Takeyama, Tennent)
- **Distributivity** and operational semantics
(with Watanabe, Lenisa)
- **Coalgebraic logic programming**
(with Komendantskaya, Schmidt)

and **lax logical relations** (with Plotkin), **data refinement** (with Kinoshita), semantics for **binding signatures** (with Tanaka),...

John and Collaborators

Anderson, S. O. Behrisch, Mike Betti, Renato Bird, Gregory J.
Blackwell, R. Cattani, Gian Luca Cottrell, Thomas De Marchi,
Federico Freyd, Peter J. Fujii, Soichiro Garner, Richard Ghani,
Neil Gordon, Robert¹ Hermida, Claudio Hyland, J.
Martin E. Johnstone, Peter T. Kelly, Gregory Maxwell
Kerckhoff, Sebastian Kick, Marco **Kinoshita, Yoshiki**
Komendantskaya, Ekaterina Lack, Stephen Lenisa, Marina
Levy, Paul Blain Lüth, Christoph Makkai, Michael McCusker,
Guy Nishizawa, Koki O'Hearn, Peter W. Plotkin,
Gordon D. Robinson, Edmund P. Rosolini, Giuseppe
Schmidt, Martin Shkaravska, Olha Simpson, Alex K. Sterling, Leon
Street, Ross H. **Takeyama, Makoto** Tanaka, Miki
Tennent, Robert D. Thielecke, Hayo Tourlas, Konstantinos
Tsujishita, Toru Turi, Daniele **Watanabe, Hiroshi**⁶ Wells,
Charles Frederick Wingfield, Cai Winkler, Glynn Worrell, James

(from MathSciNet; some co-authors of CS papers missing)

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John as a Teacher

John is a wonderful teacher and mentor.

John co-supervised more than 20 PhD students including:

- D.J. Gurr, Semantic frameworks for complexity, 1990
- C.T. Brown, Linear logic and Petri nets: categories, algebra and proof, 1990
- S.J. Ambler, First order linear logic in symmetric monoidal closed categories, 1991
- P. Gardner, Representing logics in type theory, 1992
- L. Chen, Timed processes: models, axioms and decidability, 1993
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- P. Cenciarelli, Computational applications of calculi based on monads, 1996
- A. Mifsud, Control structures, 1996
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- M. Hasegawa, Models of sharing Graphs: A categorical semantics of let and letrec, 1997
- E. Denney, A theory of program refinement, 1998
- C. Fuhrman, The structure of call-by-value, 2000
- K. Turlas, Diagrammatic representations in domain-specific languages, 2001
- M. Tanaka, Pseudo-distributive laws and a unified framework for variable binding, 2004
- M. Pretnar, The logic and handling of algebraic effects, 2010
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John and Japan

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During his visits to Japan, John worked with a number of young Japanese researchers including

- **Hiroshi Watanabe** (then a postdoc of Yoshiki), on coalgebras, distributivity and operational semantics
- **Koki Nishizawa** (then a student of Masami Hagiya at U Tokyo and a researcher at AIST), on enriched Lawvere theories
- **Soichiro Fujii** (then a student of Ichiro), on enriched categories and internal categories, and higher dimensional categories

Speakers

This workshop features talks by John's friends and collaborators as well as young Japanese researchers.

- **Yuichi Komorida** is an MSc student of Ichiro Hasuo (and a former student of Masahito Hasegawa). Interested in application of coalgebras.
- **Soichiro Fujii** is a postdoc at RIMS. Today he will talk about a joint work with John and Thomas Cottrell on weak higher categories. Also co-organize dinner with Ichiro.
- **Ken Sakayori** is a PhD student of Naoki Kobayashi at U Tokyo. He will talk about categorical semantics of the π -calculus, where Freyd categories introduced by John and Hayo Thielecke play the key role.

Speakers

- **Shin-ya Katsumata** was a PhD student in Edinburgh (finished in 2005). Former member of RIMS, and currently working at NII with Ichiro Hasuo.
- **Steve Lack** is a researcher known for his many contributions to category theory. Currently working at Macquarie University.
- **Yoshiki Kinoshita** is a long-term collaborator of John in Japan. Worked in ETL/AIST (電子技術総合研究所/産業技術総合研究所) and currently working at Kanagawa University.
- **John** will talk about his recent work with Richard Garner.

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Please go to room 110 in the ground floor.
Alternatively, you may try some local restaurants or the university canteen (ask the local participants for help).

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- For the afternoon break we have coffee and **birthday cakes**, again at the room 110.



If you believe that you are good at cutting cakes, let me know; your help is essential for the success of the afternoon break.

Dinner (only for those booked beforehand)

Dinner will take place in **OMEN** near from Ginkaku-ji temple (おめん 銀閣寺本店) from **18:00**. We will leave RIMS around 17:30 and walk to OMEN - please come to the main entrance in the ground floor. Or you may go directly to OMEN.



Organizers: Ichiro Hasuo and Soichiro Fujii

Conclusion

Happy Birthday John!

