**JOHN FELL OUP RESEARCH FUND: Part 2 - Case for Support**

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| *Please complete the following sections in non-technical language comprehensible to a general academic audience (rather than to subject specialists only). The case for support must be a maximum of 4 sides of A4 for Main Awards and 2 sides for Small Awards (minimum 11 point font). See endnotes for guidance on sections marked* 🛈*. The endnotes & any unused sections must be deleted before submission.* |

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| **Lead Applicant** | **Bob Coecke** |
| **Title of Post**  **(e.g. University Lecturer)** | Professor of Quantum Foundations, Logics and Structures |
| **Project Title** | Applied Category Theory Adjoint School |

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| **Abstract** (max 400 words) |
| The Applied Category Theory (ACT) Adjoint School is a combination of a 16-week online seminar (based on the Kan Extension Seminars) with a 2-week in-person workshop at the Lorentz Center in Leiden, Neth., intended for graduate students and other early-career researchers. The school follows the successful model of the Kan Extension Seminar (hosted by Emily Riehl): <http://www.ams.org/notices/201411/rnoti-p1357.pdf>. More information can be found at [www.appliedcategorytheory.org/school](http://www.appliedcategorytheory.org/school).  About ACT: *category theory* is a branch of mathematics originally developed to transport ideas from one branch of mathematics to another, e.g. from topology to algebra. *Applied category theory* refers to efforts to transport the ideas of category theory from mathematics to other disciplines in science, engineering, and industry. |

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| **Justification for support** [🛈](#Justification) |
| We are asking for funds to support travel and subsistence for a limited number of participants from Oxford in the school and later workshop; multiple people from multiple departments in Oxford have helped organize and/or are participating in the school and workshop, including Prof. Bob Coecke (CS), Prof. Ulrike Tillman FRS (Math), Nina Otter (CS), and Joshua Tan (CS). We expect more students to apply via the application process (currently open, closing Nov. 1).  The Adjoint School is designed to accelerate PhD students and early-career researchers into the frontiers of applied category theory. Funding from the JFF would go to support early-career researchers, and would enable them to benefit from the substantial investment and resources being put into other aspects of ACT, especially the main ACT 2018 workshop.  External support: the conference facilities and support staff are already fully-funded by the Lorentz Center for 2 weeks, at a cost of ~20,000 euros. However, they offer only a limited amount of funding for speakers, and not enough to support student travel and subsistence. We are also seeking NSF funds for potential participants from the USA. |

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| **Research objectives and proposed outcomes** [🛈](#Objectives) (max 50% of text) |
| The online seminar will run from Jan. 8, 2018 to April 23, 2018. The in-person school will run from April 23-27, to be followed by the full ACT 2018 workshop on applied category theory, running from April 30 - May 4.  Outcomes include:   1. In the leadup to the in-person school, 8 preparatory articles, written by the participants of the online seminar, will be posted on the widely read mathematics blog [The n-Category Cafe](https://golem.ph.utexas.edu/category/). These articles will summarize key papers and provide an easily accessible entry point to some of the main themes in applied category theory. 2. Slides and videos will be made available online at the [Oxford Quantum Video](https://www.youtube.com/user/OxfordQuantumVideo) YouTube channel and the [Applied Category Theory](http://www.appliedcategorytheory.org/) website, which is largely devoted to this conference and possible followups. 3. A technical report summarising presentations and discussion sections will be posted online. We are looking into plans for a proceedings volume. Plans for further conferences and community building activities will be discussed. 4. At least four research articles will be published in the months following the workshop, led by each of the 4 mentors: 5. **John Baez**: Semantics for open Petri nets and reaction networks 6. **Aleks Kissinger**: Unification of the logic of causality 7. **Martha Lewis**: Compositional approaches to linguistics and cognition 8. **Pawel Sobocinski**: Modelling of open and interconnected systems |

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| **Curriculum Vitae** (*if applicable*) [🛈](#CV) (**max. 1 side A4 per CV.** This is additional to page limit above) |
| 1. For Joshua Tan (see attached) |