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Department of Mathematics
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Please consider this letter of interest in the position at . I am an experienced teacher with an expertise in the interdisciplinary field of network theory. With my background, I believe I can serve your faculty well.

My dissertation is in the field of network theory. The central construction of my thesis is a single framework in which to reason about a wide class of networks appearing in natural and social sciences. From this work, I have published three papers and presented at national and international conferences. The networks studied using my framework are Markov processes, chemical reaction networks, Petri nets, databases, and electrical circuits. Due to the variety of fields relevant to my construction, I am interesting in interdisciplinary collaboration and I have many suitable projects for undergraduates with varied interests.

In the future, I intend to import graph theoretical measures (such as centrality measures) and techniques from other areas (particularly random graphs, statistics, and more dynamical systems) of network theory into my framework. The systems I am currently interested in come from social science and economics. I want to develop compositional approaches to social network analysis, agent-based models, and actor-networks. In economics, I want to develop compositional approaches to optimization models and aggregate models.

Having taught more than ten classes spread between two universities and two community colleges, I am prepared to teach at . From my graduate studies in network theory, I have gained a background in both pure and applied mathematics. The pure side is category theory and topology. The applied side is graph theory, dynamical systems, and computer science. I also have a background in financial math, probability, and statistics through my undergraduate degree in actuarial science. In fact, I have even worked as an actuary and passed two of the professional exams.

I am also interested in event organization. Currently, I am organizing, with members of the Quantum Group at Oxford, a six-month long workshop on applying category theory to non-math fields such as computer science, quantum information, economics, linguistics, and data visualization. The conceit is to pair junior researchers with senior researchers to help grow this community of "applied category theorists". I have applied for NSF funding, selected senior researchers, and ensured their projects are sufficiently applied. I will lead a reading course as determined by the senior researchers during which the junior researchers present papers via video conference and hold further discussion in a private online forum. The workshop culminates in a two week visit to Oxford where participants work on projects brought by the senior researchers. I look forward apply my experience here to department service, be it serving on committees or recruiting students.

I have experience with large demands, so am prepared for the responsibility of teaching concurrent courses while performing other professional service. During each quarter of the final two years in my Ph.D. program, I have TA'ed four classes at UC Riverside while serving as the primary instructor for two more classes between Riverside City College and Mt. San Jacinto College. Simultaneous to teaching and research, I review articles for the AMS, have created a department Graduate Student Association, served as its president for one year and, currently, I am organizing the workshop discussed above.

In closing, I hope that we can speak further about my interest in joining . I am confident that I can contribute to your department.

Sincerely,

Daniel Cicala