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Monday, January 21, 2013

Dear Sir or Madam,

I write to support **Daniel White's** application to the mathematics Ph.D. program at the State University of New York at Binghamton.

Daniel is currently a second year Ph.D. student at the University of South Carolina. I know him mostly from his first year, when he was somewhat hampered by a weak undergraduate background. (He went to a small liberal arts college, and as he described to me his opportunities were rather limited.) Daniel has been working diligently and steadily improving. He has succeeded in challenging coursework, and he has completed two (jointly authored) research papers.

Daniel took my graduate course on analytic number theory in his first semester at USC. My course was rather ambitious, and is very possibly the hardest course that he had ever taken. I decided to use Davenport's book *Multiplicative Number Theory*, as opposed to gentler introductions to the subject which had been used at USC in the past. My course covered a variety of elementary and complex analytic topics in the subject (indeed, more than at least one of my colleagues seemed to think wise), and the lectures and the homeworks made full use of technical tools such as Fourier transforms and complex contour integration. I assigned weekly problem sets as well as a term project.

At first I was somewhat worried about Daniel, as most of the other students were not first-years and began my course with substantially more background. But he persevered and succeeded, and earned an A. He did a good job on both the homework and his term project, concerning elementary approaches to the distribution of primes, along the lines of Chebyshev and Selberg.

Daniel expressed some interest in doing further work (with me) along these lines, and to this end briefly participated in a reading seminar on Granville and Soundararajan's "pretentious" analytic number theory. However, he switched gears and decided to work with my colleague Michael Filaseta and his graduate students during his second year. Judging by his two papers, he has been quite successful! I leave it to Michael to describe his work in more detail; suffice it to say that I consider them to be solid, well written papers which I expect to find homes in reputable research journals.

I might also mention that Daniel, with two other graduate students, has asked me to supervise a reading course in complex analysis, which he and I are both very enthusiastic about. He is also taking my course on algebraic number theory, which is a followup to Filaseta's fall course, and which will cover the subject from a "highbrow" algebraic point of view. Since I have not interacted with Daniel much during the last six months, I urge you to contact me at thorne@math.sc.edu later this spring, and ask me to comment on his performance. I expect to be able to offer further evidence of substantial improvement since he began at USC.

Daniel is doing good work, we would be pleased to have him continue at the University of South Carolina, and if he was so interested I would be happy to take him on as my Ph.D. student. However, for personal reasons, Daniel wants to return close to his home in small-town Pennsylvania, and he has expressed to me that he finds the faculty research interests at SUNY-Binghamton to be interesting and a good match for what



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he would like to learn more about. Therefore, Binghamton looks like a good match for him both personally and professionally.

I am not closely familiar with Binghamton's graduate program, but if your expectations are roughly comparable to ours, then I confidently and enthusiastically recommend Daniel White to you.

Sincerely,

A handwritten signature in blue ink that reads "Frank Thorne".

Frank Thorne
Assistant Professor of Mathematics