ANOTHER LOOK: OBI REJ

Abhijnan "Obi" Rej was the subject of an undergraduate profile in the 2003 edition of Math CONNections. Obi completed his undergraduate work that summer, earning several distinctions: He was a University Scholar, presenting a University Scholar thesis in Psychology; he was an Honors Scholar in Mathematics and wrote a Senior Honors thesis on the topic of Non-commutative Calculus; and he earned his bachelor's in Mathematics cum laude. (Perhaps the fact that he took only graduate courses in Psychology prevented him from satisfying the technical requirements for the BA in that department.) Obi continued with us as a graduate student in Mathematics and consulted at length with Physics professors Gerald Dunne (who has a joint appointment in Mathematics) and Juha Javanainen. In May 2005, he presented a thesis entitled "C*-Algebra Approach to Quantum SU(2) Groups," and a few days later received his Master's in Mathematics. During summer 2005 Obi is spending several weeks as a visitor at the Institute of Mathematical Sciences in Madras, India.

Obi's immediate future is very exciting. Officially, he is a post-Master's Ph.D. student in Mathematics at Boston University, which has awarded him a prestigious Presidential Fellowship. Professor Dirk Kreimer selected Obi to be his student. Kreimer typically spends the fall semester at BU, where he is Professor of Mathematics and founder/director of the Center for Mathematical Physics, and the spring semester outside Paris at the Institut des Hautes Etudes Scientifiques (IHES), where he is also a professor. It is anticipated that Obi's life the next few years will also be a tale of two cities.

As Kreimer's appointments suggest, he is an academic of considerable distinction. He has been a Clay Mathematics Institute Fellow at Harvard and a Heisenberg Fellow of the German Government, and is a long-time collaborator of Professor Alain Connes.

The work Obi expects to do under Kreimer's direction involves finding algebraic structures (Hopf algebras) in a certain class of theories of elementary particles ("renormalizable quantum field theories"). This area is interesting for both physical and mathematical reasons. Mathematically, it has intriguing links with algebraic geometry and topology, knot theory, and number theory; this is perfect for Obi, who thrives on exploring the links connecting different areas. Obi says his interest in Kreimer's work was sparked by a reading course he took with Gerald Dunne during spring 2004.