



## **Deborah AJAYI**

### **Home Country**

Nigeria

### **Degree**

Post-Doctorate in  
Mathematics

### **Expertise**

Mathematics

### **Research Focus**

Interactions of Combinatorics  
and Algebraic Topology

### **Host University**

Pennsylvania State  
University, United States

### **Fellowship Awarded**

2010

Deborah Ajayi was born in Leeds, England while her parents were enrolled in professional education. At a young age she moved to Ibadan, Nigeria where she lived with her grandmother, an illiterate but wealthy trader in textiles who did not believe in gender stereotypes. As a child Deborah helped her grandmother count money, which developed her numeracy aptitude. The fourth-born in her family of three girls and three boys, Deborah loves teaching. She married a lecturer and professor in Nigeria, and they have three boys.

While attending the University of Ibadan Deborah received her undergraduate degree in 1986 in education, specializing in pure and applied mathematics. In 1990 she obtained her Master of Science degree in mathematics specializing in functional analysis, and then went on to earn her PhD in mathematics in 1996 in the field of algebraic topology, where she became interested in combinatorics because it has widespread applications for real-world problems in such fields as computer science, chemistry, molecular biology and engineering.

Deborah is now enrolled in post-doctoral studies at Pennsylvania State University in the United States, where she will focus her research on the interactions of combinatorics and algebraic topology and the use of combinatorial methods in contact geometry. Her research in algebraic topology has applications in differential geometry, especially the characteristic classes and the span of certain manifolds. She intends to focus on aspects of combinatorics such as graph theory and Tverberg theorems using her knowledge of characteristic classes and combinatorial methods to solve problems in contact geometry. The results of her research should benefit computer scientists and enhance multidisciplinary research in such fields as mathematics, computer science, medicine and engineering.

When she completes her post-doctoral studies, Deborah intends to return to the University of Ibadan. She says that despite the importance of her field, there is no known expert on this research area in Nigeria.