



Zakia ABIDI

Home Country
Algeria

Degree
PhD in Magnetic Resonance Imaging

Expertise
Bioengineering

Research Focus
Development of Antennas in Magnetic Resonance Imaging

Host University
University of Paris, France

Fellowship Awarded
2006

Zakia Abidi is the fourth child in her family and the second girl. She is married to a professor of bioengineering with whom she has published a number of papers at international conferences, and they have one child.

Her PhD research on numerical modeling of surface antennas used in magnetic resonance imaging is in joint cooperation with the Medical Magnetic Resonance Research Unit at Paris XI University and the National Polytechnic School of Algiers (ENP). Her work is helping define ways to make medical images more perfect.

Using mathematical models of magnetic resonance medical imagery, Zakia hopes to come up with a more realistic way to deliver signals during the relaxation phase of MRI scanning. After conducting analytical calculations on the capacitive and inductive effects between a toric antenna and a spherical body, she became interested in numerical modeling utilizing physical and space data systems—the geometry of the body. She explores dimensions, geometrical form and electromagnetic characteristics of the reception antenna—the distance between the antenna and the body to be explored. Among the issues she is working to address, the problem of the signal/noise ratio as interpreted by curves and layout of the lines in an electromagnetic field is of pressing concern. The antenna that catches the signal and sends the image introduces this digital noise. Her work helps to show the share of influence of each electromagnetic and geometrical parameter of the system. She is building an experimental device that attempts to use different antenna shapes to compare experimental measurements with results obtained using numerical computations. These results will ultimately, she hopes, improve the quality of the image by optimizing physical and space data systems, thus reducing the digital noise.

Zakia plans to teach at the University of Sciences and Technology Houari Boumediene in Algiers. Her dream is to combine research and teaching.