

## **Intelligent Method of Teaching Electromagnetics Theory: Measurements under Virtual Environment**

S. C. Mukhopadhyay<sup>1</sup>, G. Sen Gupta<sup>1,2</sup> and S. Demidenko<sup>1</sup>

<sup>1</sup>IIS&T, Massey University, Palmerston North, New Zealand

<sup>2</sup>School of EEE, Singapore Polytechnic, 500 Dover Road, Singapore

Abstract – This paper details the development of a computer-assisted laboratory under virtual environment which has been put in place to teach the theoretical and practical aspects of Electromagnetics, without physically using any instruments to do the measurements. The virtual laboratory has allowed us to teach Electromagnetics in a new and effective way, helping our students master this difficult subject. In particular, virtual experiments have been designed which the students perform before attempting to do the corresponding real experiments. These virtual experiments help the students to appreciate the essential features of an experiment without being confused or distracted by the complexity of the real experimental procedures. We believe that learning is favorably augmented by using this innovative way of teaching the laboratory material through a computer-based, flexible and interactive environment of virtual experiments.