



九州工業大学

ディペンダブル集積システム研究センター (DISC)

## 特別講演のご案内

日時: 令和元年 6 月 20 日 (木) 13:00~14:30

場所: 九州工業大学飯塚キャンパス(福岡県飯塚市川津 680-4) <部屋:調整中>

講師: Prof. Bhargab B Bhattacharya

Indian Institute of Technology Kharagpur (インド)

内容: **Predicting X-Sensitivity of Circuit-Inputs on Test-Coverage Based on Structural Features**

Digital circuits are often prone to suffer from uncertain timing, inadequate sensor feedback, limited controllability of past states or inability of initializing memory-banks, and erroneous behavior of analog-to-digital converters, which may produce an unknown (X) logic value at various circuit nodes. Additionally, many design bugs that are identified during the post-silicon validation phase manifest themselves as X-values. The presence of such X-sources on certain primary or secondary inputs of a logic circuit may cause some loss of fault-coverage of a test set, which, in turn, may impact its reliability and robustness. In this paper, we provide a mechanism for predicting the sensitivity of X-sources in terms of loss of fault-coverage, on the basis of learning only a few structural features of the circuit that are easy to extract from the netlist. We show that the X-sources can be graded satisfactorily according to their sensitivity using support vector regression, thereby obviating the need for costly explicit simulation. Experimental results on several benchmark circuits demonstrate the efficacy, speed, and accuracy of prediction.

講師プロフィール:



**Bhargab B. Bhattacharya** is currently serving as Distinguished Visiting Professor of Computer Science & Engineering at Indian Institute of Technology (IIT) Kharagpur. Prior to that, he had been on the faculty of Indian Statistical Institute, Kolkata, for over 35 years. His research areas include digital logic testing, and electronic design automation for integrated circuits and microfluidic biochips. He has published more than 400 technical papers and holds ten US Patents. He is a Fellow of the Indian National Academy of Engineering, a Fellow of the National Academy of Sciences (India), and a Fellow of the IEEE.

連絡先: 三宅庸資 (DISC) Tel: 0948-29-7686  
Email: miyake@aries30.cse.kyutech.ac.jp