

**Invited Talk**  
**Department of Computer Science and Engineering**  
**Indian Institute of Technology Kanpur**

**Smart Infrastructure and Physical Attacks: Shall we care? (A Case Study on Smart Power Grid)**

**Date: Jan 3rd, 2017**

**Time: 4 pm - 5 pm**

**Venue: KD 101**

**Speaker:**

**Shivam Bhasin**

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(NTU)  
Singapore

**Abstract:** Modern and future electrical substations are aimed to be more interconnected, leveraging communication standards like IEC 61850-9-2, and associated abstract data models. Such interconnections would enable fast and secure data transfers, sharing of the analytics information for various purposes like wide area monitoring, faster outage recovery, blackout prevention, or distributed state estimation. This would require a strong focus on communication security, both at system level as well as at embedded device level.

This talk gives a brief overview of security aspects in substation automation from a physical attack view point. We first recall basic background on physical attacks, followed by known attacks on critical infrastructure. Next modern substation automation framework is briefly analysed for security vulnerabilities. Finally, a low-cost fault injection attack on a substation IED is studied for its potential impact.

**Speaker's bio:** Shivam Bhasin is a Research Scientist and Principal Investigator at PACE Labs, Nanyang Technical University Singapore since 2015. His research interests include embedded security, trusted computing and secure designs. He received his PhD from Telecom Paristech in 2011, Master's from Mines Saint-Etienne, France in 2008 and Bachelor's from UP Tech, India in 2007. Before NTU, Shivam held position of Research Engineer in Institut Mines-Telecom, France. He was also a visiting researcher at UCL, Belgium (2011) and Kobe University (2013). He has co-authored several publications at recognized journals and conferences. Shivam served in sTPCs of several conferences, regularly reviews journal/ conference articles and presented multiple invited seminars/tutorials in prestigious venues. Some of his research now also forms a part of ISO/IEC 17825 standard. He is also part of ESP Pvt Ltd, a budding start up on Hardware Security.