

Good afternoon,  
You are invited to attend our weekly ECE Graduate Seminar.

**Old Dominion University**  
**College of Engineering and Technology**  
**Department of Electrical and Computer Engineering**

All lectures to be held at 3:00pm on Fridays online at  
[https://vs.prod.odu.edu/kvs/interface\\_webex/?cid=202010\\_ECE7831VS\\_91606](https://vs.prod.odu.edu/kvs/interface_webex/?cid=202010_ECE7831VS_91606)  
For more information, contact Dr. Chung Hao Chen at (757) 683-3475 or email [cxchen@odu.edu](mailto:cxchen@odu.edu).

**Friday, September 25th Seminar Topic:**

**SPECIFICATION, PLACEMENT, & CONTROL OF Z-SOURCE, ULTRAFAST AUTOMATICALLY SWITCHED CIRCUIT BREAKER IN DC POWER NETWORKS by Sagar Bhatta, PhD Candidate in the Department of Electrical & Computer Engineering at Old Dominion University**

**Abstract:**

Distributed energy resources such as solar and fuel cells are emerging in electric power systems as a part of dc microgrids/nanogrids, MVDC distribution and HVDC transmission networks. However, the limitation and interruption of fault current in the dc networks are critical challenges to overcome and need careful attention from power system designers and operators. Z-Source circuit breaker (ZCB) is a promising protection device with the capabilities of bi-directional power flow and automatic/controllable turnoff function in dc circuits. In this presentation, ZCB topologies with their associated power losses, its implementation of high impedance fault (HIF) detection, and the parameter identification method of a ZCB for fault current interruption will be discussed. Also, practical application of ZCB in the MVDC transmission lines for a case with 5MW power supply representing a solar farm will be introduced.



**Bio:**

Sagar Bhatta is a Ph.D. candidate in the Department of Electrical and Computer Engineering. Before 2 (ne)4 (eeO. 0 (a)4 (nng Oe)4 )-2 (2.94 0n.C (o)-4 (if)bf(c)4 e)0(ac)3158)D No)4(e)4DC working towards his Ph.D. degree under the supervision of Dr. Yucheng Zhang in the Power Research Lab. His research focuses on the protection of power systems with the implementation of the Z-source circuit breakers, and the reliability & accuracy of protection in dc power systems.