



**IEEE Vehicular Technology Society  
Philadelphia Chapter**



**March 25, 2019 Meeting Announcement**

**Sponsor:** IEEE Vehicular Technology Society (VTS) Philadelphia Chapter

**Topic:** 230 kV Line Differential Protection Using SEL-411L and SEL-311L Relays

**Speaker:** Frank J. Heleniak, Regional Technical Manager - Northeast, Schweitzer Engineering Laboratories

**Professional Development Hours:** Attendees may apply for 1.0 PDH upon completion of lecture. Certificates will be provided through the IEEE Certificates Program, accepted in all states.

**Meeting date/time:** **Monday, March 25, 2019, 11:45 am to 1:00 pm**

**Meeting location:** STV Incorporated, 14th Floor Conference Room  
Beneficial Bank Place, 1818 Market Street, Philadelphia PA 19103-3616

**Cost of meeting:** A charge of \$9.00 will be collected for IEEE PDHs.

Lunch will be provided complementary of Schweitzer Engineering Laboratories

**Reservations:** *Attendees are required to register at* <https://events.vtools.ieee.org/m/194851>

If you have any questions, please contact Brandon Swartley at [brandon.swartley@ieee.org](mailto:brandon.swartley@ieee.org) or 856-986-1221.

**Abstract:** A 230 kV substation is undergoing a relay replacement project. Westinghouse LCB II line differential and GE CEY line distance relays, including existing audio tone and transfer trip systems, presently protect 230 kV incoming transmission lines. The replacement relays are SEL-411L and SEL-311L line differential relays, serving as primary and backup schemes using fiber optics to communicate with adjacent substation relays. This presentation introduces the multifunctional SEL-411L and SEL-311L line current differential relays. Line current differential theory is discussed as well as the operating principles of both relays, how they are similar, and where they differ. Hardware, logic, settings, and example applications are presented.

**Speaker:** Frank J. Heleniak earned his B.S. in electrical engineering and B.S. in physics from Widener University in 2014 and M.S. in electrical engineering from Villanova University in 2018. Frank joined Schweitzer Engineering Laboratories, Inc. in 2014 as an associate application protection engineer and is currently a regional technical manager. His responsibilities include protective relaying application support and technical training. Frank is a registered professional engineer in the state of Pennsylvania and a member of IEEE.

**IEEE VTS Philadelphia Chapter Officers:**

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