

## DID YOU KNOW?

Local IEEE events, such as lunches and seminars, bring **your** IEEE dues back into the Schenectady Section! The catch is, we need volunteers to plan events and (you guessed it) file reports with IEEE.

## We NEED Volunteers!

We work as a team; volunteers have lots of support for setting up a seminar or lunch talk. Being a volunteer takes an hour or two each month to attend the committee meeting (in person or call-in) and it is fun to meet and work with other local engineers. Events can be in your technical area, in career development, purely social, or even supporting a high school science event.

Please consider contacting the following people to ask questions or volunteer.

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## Annual Holiday Luncheon (and Assumption of Officers)

December 12, 2013  
12:00 Noon  
Niskayuna Reformed Church  
3041 Troy-Schenectady Rd (Rt. 7), Niskayuna, NY  
*Hot lunch will be served.*

**Please plan to attend!**

Newsletter Editor: Becky Nold [r.nold@ieee.org](mailto:r.nold@ieee.org)

Note 1: Article ideas are welcome!

Note 2: Chandra's column on page 2 is worth the read!

## An Invitation from ASME

Assuming you're currently a \*non-ASME-member\*, anyone is welcome to register a profile and join ASME.org's \*free\* to non-members "Phase-2" social media software community:

[https://community.asme.org/hudson\\_mohawk\\_section/default.aspx](https://community.asme.org/hudson_mohawk_section/default.aspx)

We encourage you to become an ASME member to support Hudson-Mohawk's activities. However, once a profile is registered with ASME.org, that person will be able to retrieve newsletters "on-demand", no-charge when Hudson-Mohawk ASME webmaster *Denes Carpenter* posts them.

Thanks for your interest in ASME Hudson-Mohawk Section activities!

## Harmonics in Electrical Power Systems: Effects of New Technologies

**Peter Sutherland, PhD, PE**

Grid Interconnection Engineer for GE Renewables

**October 11, 12:00 Noon**

Niskayuna Reformed Church

3041 Troy-Schenectady Rd (Rt. 7), Niskayuna, NY

*Variable Frequency Drive (VFD) technologies previously used only in high power applications, such as PWM Drives, Active Front Ends, and 18-pulse rectifiers have moved to lower voltage and power levels. They are now widely used in industrial and commercial power systems. The techniques used in conventional harmonic analysis for the 6-pulse SCR drive no longer apply in many cases. New harmonic limitation devices, such as broadband and active filters are replacing the conventional notch filter. The purpose of this talk is to bring engineers up to date and give them new tools for solving harmonic problems.*

Please contact Lou Tomaino at [schdyiee@yahoo.com](mailto:schdyiee@yahoo.com) by **Thursday, October 10**, at 9:00 AM to reserve and specify this event. This event is free for IEEE members, \$5.00 for non-members to help cover the cost of the room.

## Message from the Chair:

*What is the purpose of a professional society in today's world? If I am looking for information, I don't need to find experts; I have Google literally at my fingertips. My cell phone can hold more scientific articles than my four drawer file cabinet. I have a job, my company won't pay for dues and who has time to go to conferences any more. Besides, all the really interesting stuff is never published, right? It's someone's intellectual property. I have my own friends, take time to network? Pffiddle! I'm busy.*

*Sound familiar? If you are like me, this is the conversation you have with yourself about the time that dues renewal comes up every fall. I am typically driving in my car, running through the day's to-do list, or the corresponding list of what didn't get done, and I am certain that my future forever will be something like my present mess. And if nothing changes, why do I need to plan for the future, right? I don't want to sound too casual, we all know that we have to self-fund our retirement, pay for our kid's college, eat well now for our future health...*

*But how do we really see ourselves? A recent article in the journal **Science** entitled "The End of History Illusion" (Quoidbach et al, *Science* 4 January 2013: Vol. 339 no. 6115 pp. 96-98) addresses this issue. The researchers examined more than 19,000 people between 18 and 68 to ask them about real change in the past, and perceived change in the future. What they found was that the majority of people report that they have changed substantially in the last ten years, but their perception of the rate of change in the next ten years tended to be a greyer, more wrinkled version of exactly the same person they are right now. "People, it seems, regard the present as a watershed moment at which they have finally become the person they will be for the rest of their lives." And it doesn't matter what age the study participants were, the result was the same.*

*So why does this perception illusion impact your involvement in a professional society? A professional society like the IEEE has a large variety of support services and opportunities. You can get together to listen to interesting talks in an environment where "I'm an electrical engineer" isn't followed by "ohh, ummm.....boy, the weather is nice today." But more importantly, when your professional aspirations change, either by your choice of your companies (or their creditors), it's a great place to start looking for other options. You can learn about new and interesting fields that you never really knew existed. You can find local people who can answer the questions that Google can't. Life is going to change far more than you or I could ever imagine. The IEEE can be part of your safety net. And if nothing else, we have pizza...*

**Chandra Reis**

## CHARLES STEINMETZ ON THE ELECTRIC CAR: A TREASURE FROM THE IEEE ARCHIVES

*Reprinted from the IEEE History Center Newsletter, July 2013)*

Most of the material in the IEEE Archives are official Institute records—documents, images, and artifacts that preserve the history of IEEE and its predecessors AIEE and IRE. The Archives' mission is Institutional history.

Beyond this mission, there is a small quantity of material of a broader nature, dealing with one aspect or another of IEEE's technologies. One of the most interesting such documents is a signed, unpublished March 1920 typescript by Charles Proteus Steinmetz on electric cars.

Charles Steinmetz was one of the most prominent early members of the AIEE, serving as Institute President in 1901-1902. Steinmetz spent his career with General Electric, for many years as GE's chief consulting engineer, based in Schenectady, New York, U.S.A. He did research and wrote, chiefly fundamental work on electrical theory and related mathematical analysis. His work included the law of hysteresis, mathematical methods for calculating AC phenomena, and several books: most notably *Theory and Calculations of Transient Phenomena and Oscillations* (1909). Alongside his GE work, he spent twenty years as a part time faculty member at nearby Union College.

Although electric cars had been competitive with internal combustion vehicles in the U.S. in the first decade of the twentieth century, they declined rapidly in the 1910s, as gasoline-powered cars improved. The latter's decreasing price, greater range and faster speeds, combined with a decrease in the price of oil, made them the standard as cars evolved from novelties for the rich towards technology used by a broad range of Americans.

In the manuscript, Steinmetz listed what he saw as the relative advantages of gasoline and electric cars. He contended that electric cars and trucks could be manufactured that would be fully competitive for urban use, and proposed a novel design to accomplish this goal. His design featured a novel compact double-rotor motor that was an integral part of the rear axle. It thereby did away with the need for a mechanical differential and drive shaft, reducing weight and complexity.

A small number of cars with Steinmetz's double-rotor motor had already been manufactured in 1917 by the Day Electric Corporation, but they were a commercial failure. Steinmetz helped form the Steinmetz Electric Car Company in 1920 to produce electric cars, but the company built only a few prototypes before ceasing operation shortly after Steinmetz's death in 1923.

**The complete typescript can be viewed on the IEEE Global History Network.** A longer discussion of Steinmetz's manuscript, with an easy-to-read version of the text can be found in: C. Sulzberger, "Steinmetz's Electric Car," *IEEE Power and Energy Magazine*, Volume 3 Number 5 (September-October 2005) 70-77.