

**Ahmad Shahsiah, Ph.D., P.E.**  
**Senior Engineer**

**Professional Profile**

Dr. Ahmad Shahsiah is a Senior Engineer in Exponent's Electrical Engineering and Computer Science practice. Dr. Shahsiah's specialty is in electrical and electronic systems, particularly high voltage engineering, dielectrics and electrical insulation, and condition-monitoring techniques. He has an award-winning dissertation in mathematical modeling of dielectrics physical phenomena. Dr. Shahsiah has extensive experience in electric power systems, power system computer modeling, power quality, transmission and distribution lines, industrial power systems, switching and transients, electric machines and drives, relaying and protection, instrumentation and computer interfacing. He also has a broad experience in reliability and failure analysis, acoustic ultrasonic techniques, computer programming, electrical and electronic hardware design, power transformers health monitoring, dissolved gas analysis, gas chromatography, and liquid dielectric testing.

Dr. Shahsiah received his Ph.D. from Rensselaer Polytechnic Institute, where he worked on mathematical and experimental characterization of liquid dielectrics in high voltage devices. He also worked as a research assistant and computer consultant. Dr. Shahsiah was also a teaching assistant where he taught undergraduate and graduate level courses including electric and magnetic fields, electronic instrumentation, signals and systems, and nonlinear programming. He also worked at Physical Acoustics Corporation where he performed studies to develop a new portable system based on acoustic ultrasonic techniques.

**Academic Credentials and Professional Honors**

Ph.D., Electric Power Engineering, Rensselaer Polytechnic Institute, 2006  
M.S., Electric Power Engineering, Rensselaer Polytechnic Institute, 2001

DEIS Graduate Fellowship Award from IEEE, October 2005; Department Scholarship Award, Rensselaer Polytechnic Institute, September 2002; Honorary Diploma of Industrious Student, Undergraduate School

**Licenses and Certifications**

Registered Professional Electrical Engineer, California, #18599

**Languages**

Farsi

## **Publications and Presentations**

Lindgren S, Shahsiah A, Nabavighadi M. Finding the true meaning of CO<sub>2</sub> & CO in power transformers—Separating reality from myth using on-line DGA monitoring. EPRI Substation Equipment Diagnostics Conference, Orlando, FL, March 2–5, 2008.

Shahsiah A, Degeneff RC, Nelson JK. Modeling dynamic propagation of characteristic gases in power transformers oil-paper insulation. IEEE Transactions on Dielectrics and Electrical Insulation 2007; 14(3):710–717, June.

Shahsiah A, Degeneff RC, Nelson JK. A study of the temperature-based dynamic nature of characteristic gases in oil-cellulose insulation systems. IEEE Transactions on Dielectrics and Electrical Insulation 2007; 14(2):471–479, April.

Shahsiah A. Modeling dynamic propagation of characteristic gases in transformer oil/paper structure and transformer fault diagnostics. Doctoral dissertation, Rensselaer Polytechnic Institute, May 2006.

Shahsiah A, Degeneff RC, Nelson JK. A new dynamic model for propagation of characteristic gases in transformer oil-cellulose structure due to temperature variations. IEEE Conference on Electrical Insulation and Dielectric Phenomena, Nashville, TN, October 2005.

Shahsiah A, Degeneff RC, Nelson JK. Modeling dynamic propagation of characteristic gases in power transformers oil/paper structure. EPRI Substation Equipment Diagnostics Conference, New Orleans, LA, March 6–9, 2005.

Woong D, Yu B, Song, Y, Wang A, Liu, Y, Shahsiah A. Discharge and thermal gassing monitoring using fiber acoustic sensors. EPRI Substation Equipment Diagnostics Conference, New Orleans, LA, February 15–18, 2004.

Ward B, Degeneff RC, Shahsiah A. Gases generated from bare electrode at elevated temperatures immersed in mineral oil observed over range of temperature and pressure. EPRI Substation Equipment Diagnostics Conference, San Antonio, TX, February 17–20, 2002.

## **Project Experience**

Conducted experiments, performed circuit simulations using PSpice, and participated in a field inspection to study the operation of digital protective relays.

Evaluated the failure of low voltage equipment due to transients generated by faults in a high voltage distribution system.

Managed and conducted a comprehensive study on electric appliances from a reliability, safety, and fire hazard point of view.

Conducted field inspections in and around a dairy farm to measure and evaluate stray voltage/current.

Performed field inspections to evaluate and/or document the condition of failed devices including power apparatus, building services, and control equipment.

### **Professional Affiliations**

- IEEE, Dielectrics and Electrical Insulation Society—DEIS, 2001–current (member)
- IEEE, Power Engineering Society—PES, 2001–current (member)