

Title: “System Level Approach to EMC Shielding on Hybrid and Electric Vehicles”

Duration: 1-day

Outline:

- 1. Introduction**
 - a. EMC Terminology**
 - b. EMC Sources**
 - c. EMC Noise Paths & Antennas**

- 2. EMC System Engineering – Vehicle Architecture**
 - a. Bound System for EMC**
 - b. Identify Sources of Requirements**
 - c. Discover & Understand Requirements**

- 3. Grounding Principles of Hybrid/Electric Powertrains**
 - a. Single-point Ground System**
 - b. Multi-point Ground System**
 - c. Hybrid Ground System**
 - d. Considerations**
 - i. Galvanic Action**
 - ii. Galvanic Series**

- 4. Shielding**
 - a. Principles & Theory**
 - i. Shielding Effectiveness**
 - ii. Absorption Loss**
 - iii. Reflection Loss**
 - iv. Apertures**
 - b. Wiring harness & Cabling**
 - i. Electric Field Coupling**
 - ii. Magnetic Field Coupling**
 - iii. Configurations**
 - iv. Components & Materials**
 - 1. Types**
 - 2. Evaluation**
 - 3. Applying/Integrating**
 - c. System EMC Shielding Model**
 - i. Create Alternatives**
 - ii. Select Best Solution**
 - iii. Validate Best Solution**