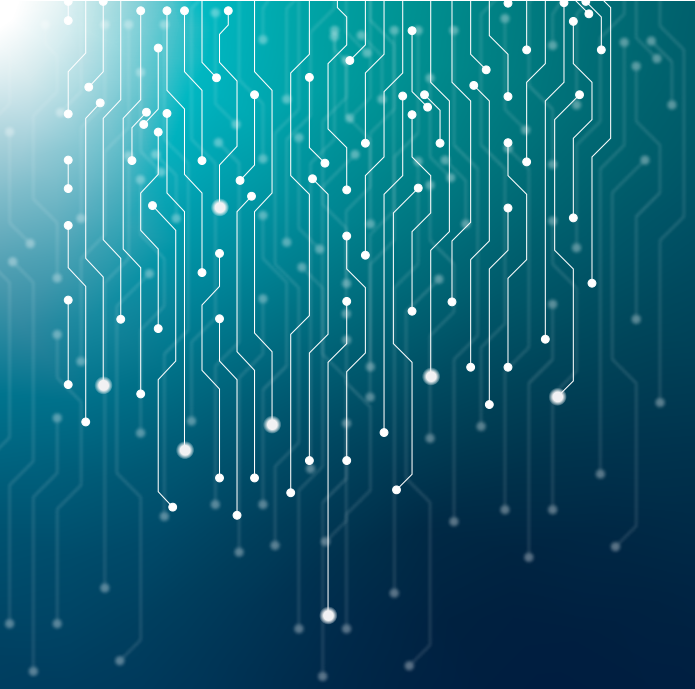

POWER YOUR IDEAS!

9th Power Analysis & Design Symposium

Advanced Characterization, Simulation and
Troubleshooting of Electronic Power Systems

Symposium: March 5th, 2020 / 08:30 - 17:00
Open Lab: March 4th, 2020 / 15:00 - 19:00
in Eching (near Munich), Germany

With lectures, practical examples and demonstrations
presented by international experts from:

Bs&T Frankfurt am Main GmbH, Dr. Ali Shirsavar,
EMV-Kurs.de, KEMET Electronics, K&K Prime Engineering,
Microchip Technology, Tomas Bata University in Zlín
and Würth Elektronik

Register until:
February 19th, 2020

www.omicron-lab.com/event

OMICRON LAB

Facts

Participants

- Power electronics design engineers working on analog and digital power supplies who want to ensure optimum system performance.
- Electronic engineers who need to assess the quality and stability of a power supply they are using or planning to buy.

Free Participation

The participation in our symposium is free of charge and will include lunch and refreshments during breaks.

Venue

The Symposium and the Open Lab take place at:
Bürgerhaus Eching
Roßbergerstraße 6
85386 Eching (near Munich)
Germany

Accommodation & Travel Information

All details for recommended accommodations and travel information can be found on our web page:
www.omicron-lab.com/event

Your Contact

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March 4th - Pre-evening Open Lab:

Join our Open Lab after your daily work is done. We will have several measurement benches ready for you, where we can measure loop stability, PSRR, output impedance and more... So, come whenever you want, have a beer, bring your power supplies and do some great measurements with us.

The Lab will be open on March 4th from 15:00 - 19:00.

March 5th - Preliminary Agenda:

08:30 - 09:00	Registration
09:00 - 09:15	Welcome & introduction
09:15 - 10:15	Lectures
10:15 - 10:45	Break & exhibition
10:45 - 12:15	Lectures
12:15 - 13:45	Lunch & exhibition
13:45 - 15:15	Lectures
15:15 - 15:45	Break & exhibition
15:45 - 16:30	Lectures
16:30 - 17:00	Discussion & closing

Registration

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Seminar Partners

Dr. Ali Shirsavar
founder of
Biricha Digital

Topics

Building Digital 2-Quadrant Multi-Loop Control Systems
by Andreas Reiter - Microchip Technology

Systems powered by renewable energies, the requirement of backup power or the continuously growing number of wireless, mobile applications push the need for efficient, cost-effective and highly flexible energy storage front-end converters. Most battery powered systems today are tailored to a specific energy storage type relying on the availability of a specific energy storage unit. Thus, dealing with supply shortages during product lifetime becomes challenging and improvements in technology cannot be applied without conducting a fundamental system redesign.
This lecture introduces the design and validation process of a digitally controlled 2-quadrant (bi-directional) energy storage front-end converter control system used to charge, discharge, monitor and manage an attached energy storage, effectively resulting in a self-managed, intelligent, chemistry-agnostic power bank design, which can be dynamically adjusted and controlled by higher system management layers to tailor the power bank performance characteristic to system-specific needs, operating conditions or user demands.

Counterfeit Components - Serious Threat for Electronic Assemblies
by Petr Neumann - Tomas Bata University in Zlin

The counterfeit electronic components spreading and infiltration in electronic assemblies is a pandemic problem and it has been increasing dramatically since about new millennium beginning. This treatise gives an overview of counterfeit components facts including their background, possible features, and basic methods for component authenticity assessment. The published common examples illustrate the problem, and the higher emphasis lays on power electronic components. The results of university own laboratory analyze examples complement the idea of counterfeit component threat in case there is no measures how to identify them, and filter them away from application.

Do it (up)-right
by Axel Schmidt - KEMET

From a fancy idea born in a pub to a new form factor of multilayer ceramic capacitors. Simply changing the orientation of a chip can improve the efficiency by 100% for the MLCC. Modern equipment like the Bode 100 offers proof of concept thru all design stages. With the new connection technology, TLPS offers a leadless stack with lower ESL, lower ESR and improved ripple current capability that can lead to 30°C drop in temperature.

Easy Step-by-Step Guide to SEPIC design
by Dr. Ali Shirsavar - founder of Biricha Digital

In this session we will demonstrate a simple step-by-step method for SEPIC control loop design.
SEPIC's transfer function is extremely complex and therefore instead of presenting these long mathematical equations, the session presents how a practicing engineer could accurately stabilize the loop without resorting to complex mathematics. The session concludes with practical demonstrations and results. To make the most of the session we highly recommend that the delegates download a free version of Biricha WDS in advance of the session from www.biricha.com/wds

Ground - the Potential Disturber
by Thomas Eichstetter - EMV-Kurs.de

Ground is often used as a trash can for all possible currents. It is forgotten that there are also voltage drops due to current changes. If the mass is not properly planned, disturbers arise which leave the circuit and will be radiated. To avoid this, the difference between potential reference and equipotential bonding is demonstrated clearly and a simple solution to this problem will be presented.

High Bs Ferrite Material Development with high Tc for high Power Applications
by JC Sun - Bs&T Frankfurt am Main GmbH

The next generation of Wide Band Gap semiconductors must be accompanied with the next generation of passive components, particularly magnetic components, compatible with high frequency under pulsation. High saturation and low power losses under pulse excitation and relatively high temperatures are required. The most recent development of ferrite material with decent dopants and well controlled process enlarges the application potential of ferrite material for high power and high power density application, and exhibits as interesting alternative to magnetic alloyed powdered material, due to its excellent loss properties, being ceramic. In combination of powder metallurgical capability for large sized monolith shaped core, the workable magnetic flux can be maximized for high power application, and the thermal stability can be improved with higher Curie temperature, for instance over 600 Kelvin. The highest Bs recipe is well of interest for MHz application, due to Snoek's law, which the ferromagnetic resonance frequency is proportional to saturation magnetization Ms, the resistivity of grain and grain boundary management is not only the task of chemical composition, but also challenge of process management from morphological aspect.

Impedance Measurement Setups for Components and Modules under DC-bias
by Melanie Klenner - K&K & Joanne Wu - Würth Elektronik

How do you achieve accurate and realistic measurements to support your design? Simulations and calculations are an important step in your electrical design however this is mostly done with nearly idealistic or approximated impedance values for the chosen components. To achieve a reliable design you also need to make sure the components and modules are behaving as supposed under real condition like DC-bias and layout design. Here we look into two different measurement setups that reconstruct these electrical environments to provide realistic results over a broad frequency range. One is an impedance measurement fixture with DC-bias up to 20A or high-voltage for specific component types and one is a broad application fixture for diverse components and modules up to 5A/50V. To show some examples, we combine the measurement setup with the Bode 100.

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