

## 1. Session Title

GaN Integrated Circuits and Challenges Solved by Integration

## 2. Abstract

GaN HEMTs have proven ability to enable greater power density through reduced losses and higher frequency operation in many applications, especially those requiring very compact solutions. However, due parasitic there are some challenges associated with gate driving loops at high power and high switching frequency. An integrated approach helps decreasing the parazitics and dramatically increase overall performance and robustness. In this special session, repersetative of five GaN campanies will discuss the current state-of-the-art as well as the next few years' innovations in GaN integrated circuits and challenges solved by integration..

## 3. Session Organizers

**Organizer 1:** Dr. Tanya Gachovska Senior Power Engineer MDA, Montreal, Canada

Tanya Kirilova Gachovska received her M.Eng., and Ph.D. degrees, all in Electrical Engineering, from the University of Ruse, Bulgaria, in 1995 and 2003. She earned her second Ph.D. Degree in Electrical Engineering (Power Electronics), at the University of Nebraska-Lincoln (UNL), Lincoln, USA in 2012. Her Ph.D. thesis was “Modeling of Power Semiconductor Devices”. She worked as an Assistant Professor at the University of Ruse from 1999 to 2003. She conducted research from 2004 to 2006 and taught for a semester in 2006 at McGill University in Montréal. She worked as a Postdoctoral Research Scientist in the area of Pulsed Electric Fields at UNL from 2012 to 2013. She worked for Solantro Semiconductor, Corp., Ottawa in 2013 to 2021. Now she is working for MDA Montreal. Dr. Gachovska authored or coauthored more than 30 technical papers and conference presentations, two books, and two book chapters and holds a world patent in Pulsed Electric Fields. In 2019 Dr. Gachovska become a professional engineer of Ontario. She is PELS Ottawa chair. She is PEDCC standard chair and chair for IEEE Standard for “Datasheet Parameters and Tests for Integrated Gate Drivers PEDCC”. Dr. Gachovska is a senior IEEE member.

## 4. Session Panelists/Speakers

**Panelist 1:** Dr. Alex Lidow - CEO and co-founder of Efficient Power Conversion Corporation

**Title:** Extending GaN Integration to Higher Power and Faster Speeds

**Panelist 2:** Dr. Simon Li - Co- founder of GaNPower International

**Title:** Monolithic integration of highside driver with GaN power switches

**Panelist 3:** Dr. Mohamed Imam - Director, Concept & Device Engineering, GaN Technology at Infineon

**Title:** Game Changing and Commercially Feasible High Voltage Monolithic GaN Bi-Directional Switches

**Panelist 4:** Doug Bailey -Vice President Marketing & Applications Engineering at Power Integrations

**Title:** Integration and technology agnosticism is the smart approach to maximizing power supply efficiency and operating range

**Panelist 5:** Francesco Ferrazza - Application Engineer - STMicroelectronics

**Title:** Integration of WBG-based systems for easy, compact, and efficient power conversion design