

Pioneer Award Winner 2024

Prof. Ittcho Angelov

EuMA | European
Microwave
Association



Ittcho Angelov is a trailblazer in the field of electronic modelling, recognized for pioneering the development of the first comprehensive large signal FET models. These models are characterized by their compact nature, minimal parameters, and mathematically precise framework, featuring continuous derivatives. They seamlessly integrate current-voltage relationships, capacitances, and their derivatives, rendering them easily comprehensible, modifiable, and adaptable for various applications including table-based or physical models.

The impact of Ittcho's work extends globally, with numerous researchers worldwide leveraging his models to tailor their studies to specific devices such as GaN, GaAs, CMOS, and SOI. Widely adopted across different foundries and companies, his models have become indispensable tools in the electronic industry, particularly as one of the most utilized HEMT models.

Ittcho's academic journey began with an MS in Electronics (1969) and a Ph.D. in Mathematics and Physics (1973) from Moscow State University. A Life Fellow of the IEEE, he has authored and co-authored over 100 papers, including several book chapters, cementing his status as a thought leader in device modelling, nonlinear microwave circuit simulation, and MMIC designs.

His illustrious career saw him serve in various capacities, including as a Researcher at the Institute of Electronics, Bulgarian Academy of Sciences (BAS), before ascending to positions such as Senior Researcher, Research Professor, and Head of the Department of Microwave Solid State Devices. Notable among his projects were advancements in cryogenic amplifiers and applications spanning communication, medical, and space domains.

Transitioning to Chalmers University in 1991, Ittcho contributed significantly to millimetre-wave MMIC projects at the Department of Electron Physics, now known as the Microwave Electronics Lab (MEL). His pursuit of accurate device modelling led to the development of pioneering large signal models for HEMTs, a breakthrough that garnered international recognition and rapid adoption in commercial CAD tools.

Throughout his career, Ittcho has collaborated with esteemed colleagues and institutions to refine and expand the scope of his models. From early implementations in software packages like Har-

monica to their integration into industry-standard tools such as Microwave Office and ADS, his work has continuously evolved to meet the demands of emerging technologies, including the development of GaN HEMT models.

As we look towards the future, Iltcho's contributions remain instrumental, with ongoing efforts to integrate novel charge and charge-current capacitance definitions into CAD tools, poised to further enhance the capabilities and applicability of transistor models.

