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- IEEE与IEEE Xplore简介
- 高效检索科研论文
- 搜索追踪学术热点
- IEEE活动介绍,助力科研与职业发展





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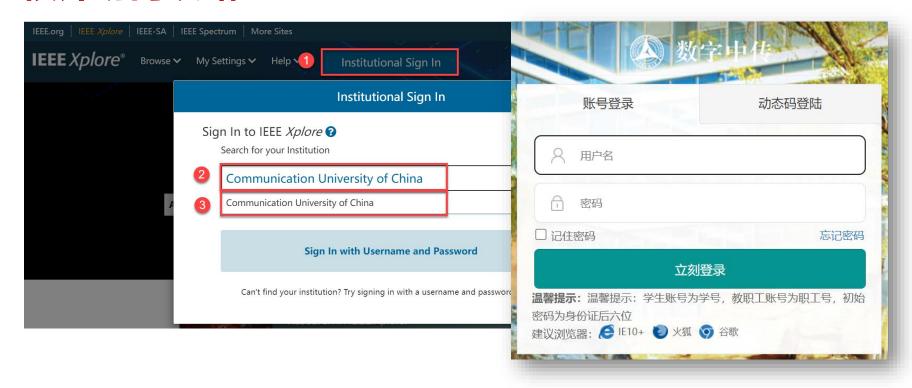
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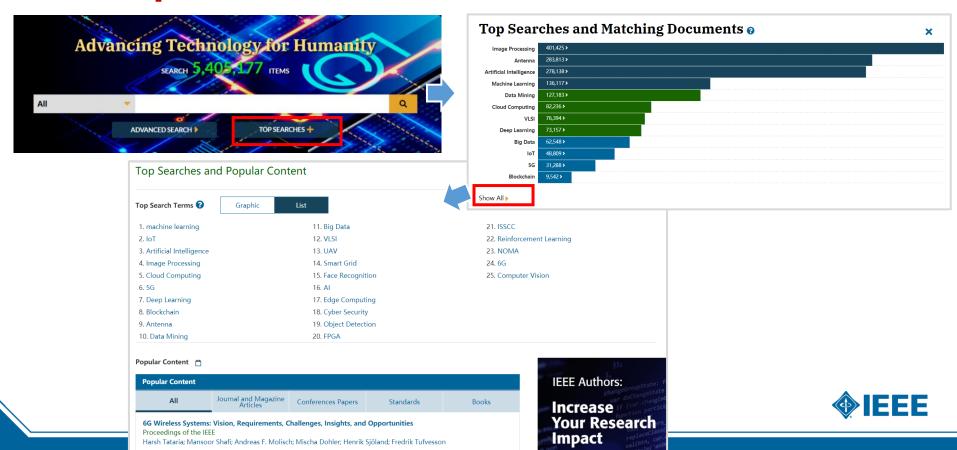
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Biography

Raymond W. Yeung (Fellow, IEEE) was born in Hong Kong in June 1962. He received the B.S., M.Eng., and Ph.D. degrees in electrical engineering from Cornell University, Ithaca, NY, USA, in 1984, 1985, and 1988, respectively., He was on leave at the École Nationale Supérieure des Télécommunications, Paris, France, in Fall 1986, He was a Member of Technical Staff of AT&T Bell Laboratories from 1988 to 1991. Since 1991, he has been with The Chinese University of Hong Kong, where he is currently a Choh-Ming Li Professor of information engineering and the Co-Director of the Institute of Network Coding. He has held visiting positions at Cornell University, Nankai University, Bielefeld University, the University of Copenhagen, the Tokyo Institute of ... Show More

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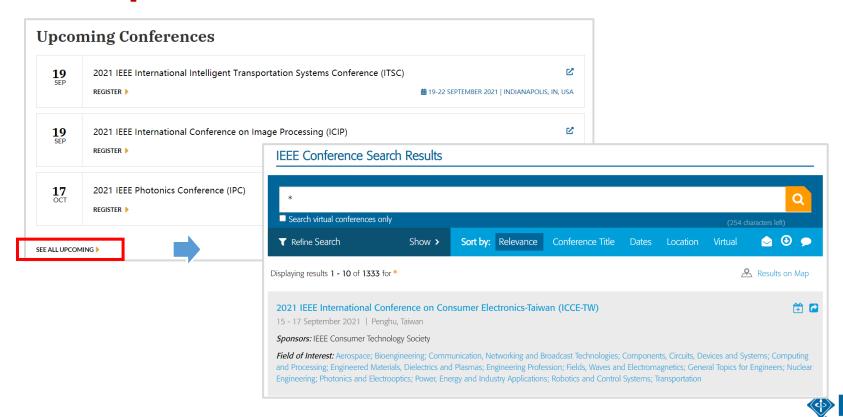
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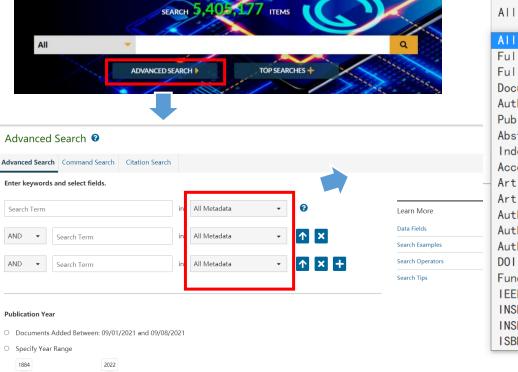


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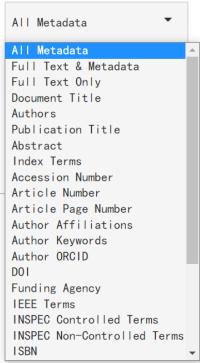
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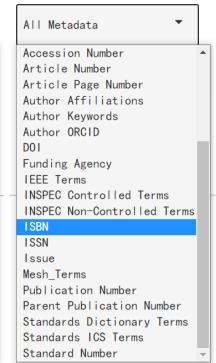


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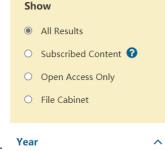






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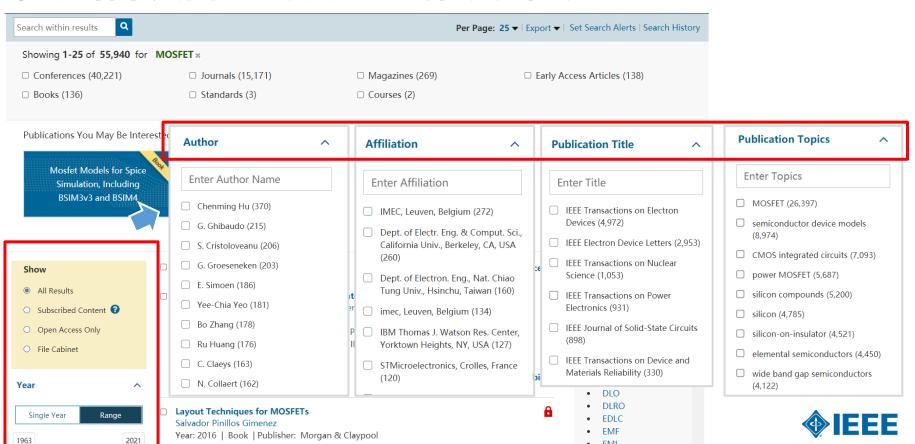


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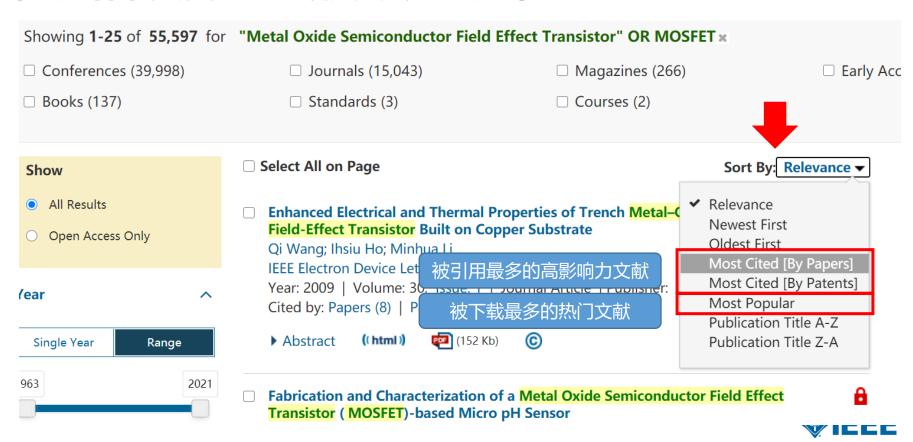
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Hybrid MOSFET/driver for ultra-fast switching



L. Tang: C. Burkhart

IEEE Transactions on Dielectrics and Electrical Insulation Year: 2009 | Volume: 16, Issue: 4 | Journal Article | Publisher: IEEI Cited by: Papers (8)

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Hybrid MOSFET/driver for ultra-fast switching

Publisher: IEEE

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Coreless printed circuit board (PCB)

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IV. Conclusion



Abstract:

The ultra-fast switching of power MOSFETs, in about 1 ns, is very challen the parasitic inductance that is intrinsic to commercial packages used fo

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drivers. Parasitic gate and source inductance not only limit the voltage r internal gate structure but can also cause the gate voltage to oscillate. This paper describes a hybrid approach that substantially reduces the parasitic inductance between the driver and MOSFET gate, as well as between the MOSFET source and its external connection. A flip-chip assembly is used to directly attach a die-form power MOSFET and driver on a PCB. The parasitic inductances are significantly reduced by eliminating bond wires and minimizing lead length. The experimental results demonstrate ultra-fast switching of the power MOSFET with excellent control of the gate-source voltage.

Published in: IEEE Transactions on Dielectrics and Electrical Insulation (Volume: 16, Issue: 4, August 2009)

Page(s): 967 - 970

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9.5211841

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SECTION I.

Introduction

Power MOSFETs have great potential as switches for high speed high voltage applications like pulsed power, the theoretical carrier transit time from drain to source is on the order of 200 ps in any cell of the silicon die [1]. Although the power MOSFET is

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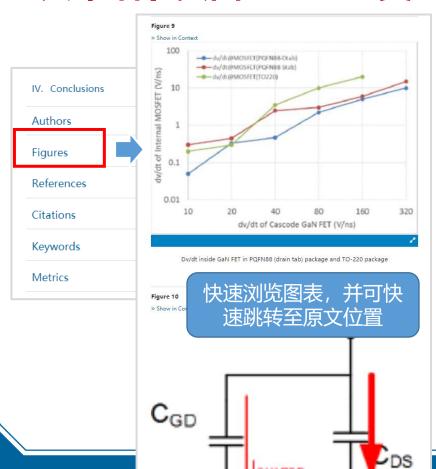
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MOSFET is the most popular semiconductor switch and has been widely used in power electronics systems, like power supply, PFC, etc. Recently, it is also used in cascode GaN FET [1], as shown in Figure 1. In order to achieve high efficiency, MOSFETs nowadays are designed with very low parasitic capacitances and inductances. Combined with well-designed PCB layout, MOSFETs switches at nano-seconds [2] [3]. However, GaN HEMT

2. "Application Advantages and Disadvantages of Modern Fast Switching MOSFETs in VRM", *PCIM Europe*, 2016.

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1. Can MOS

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FET?

of the semiconductor was proposed in [23], and was defined as:

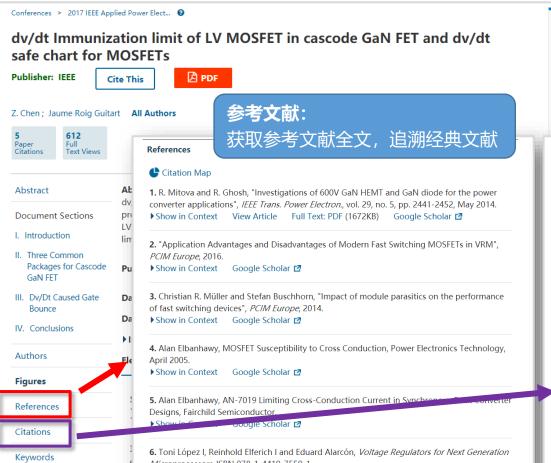
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- 1. Masahiro Koyama, Kentaro Ikeda, Kazuto Takao, "Novel cascode GaN module integrated a single gate driver IC with high switching speed controllability", *Power Electronics and Applications (EPE'18 ECCE Europe) 2018 20th European Conference on*, pp. P.1-P.8, 2018. Show Article Full Text: PDF (2528KB) Google Scholar 2
- 2. Tianhua Zhu, Fang Zhuo, Feng Wang, Hailin Wang, Xiaoping Sun, Shuhuai Shi, Baohui Ma, "Quantitative Analysis and Suppression Strategies of Dv/dt Induced Turn-on of Cascode GaN FETs in Half-bridge Circuits", Wide Bandgap Power Devices and Applications in Asia (WiPDA Asia) 2018 1st Workshop on, pp. 130-134, 2018.

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- 3. Tianhua Zhu, Fang Zhuo, Fangzhou Zhao, Feng Wang, Tong Zhao, "Quantitative Model-Based False Turn-on Evaluation and Suppression for Cascode GaN Devices in Half-Bridge Applications", *Power Electronics IEEE Transactions on*, vol. 34, no. 10, pp. 10166-10179, 2019. Show Article Full Text: PDF (8243KB) Google Scholar 2
- 4. Jian Chen, Xiong Du, Quanming Luo, Xinyue Zhang, Pengju Sun, Lin Zhou, "A Review of Switching Oscillations of Wide Bandgap Semiconductor Devices", Power Electronics IEEE Transactions and July 18, pp. 31310, 2320.

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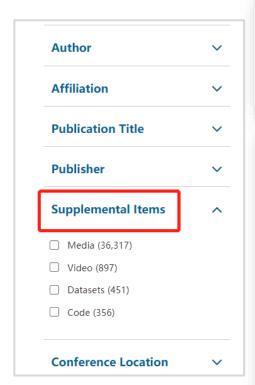
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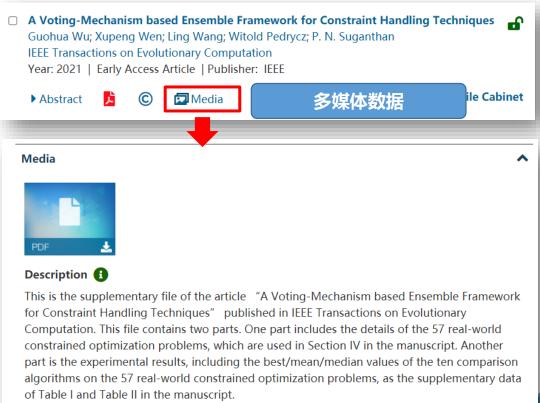
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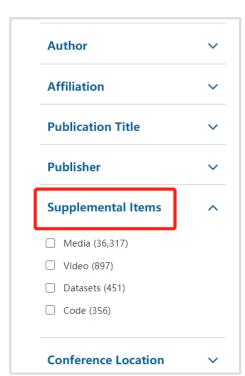
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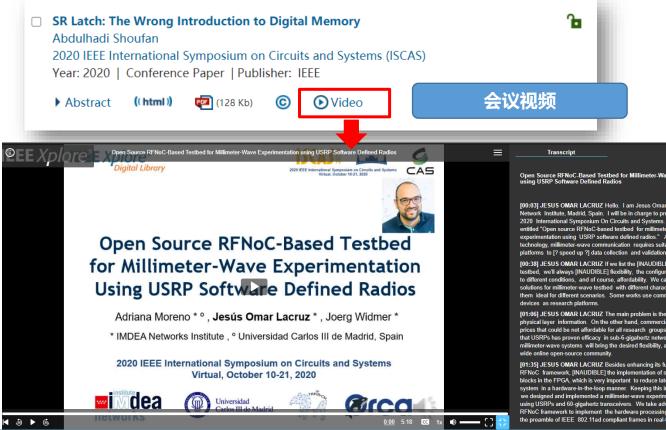
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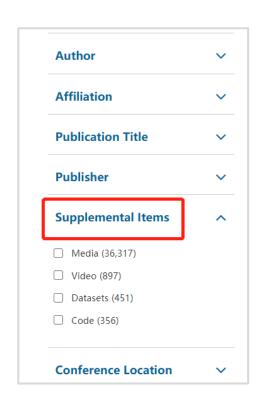
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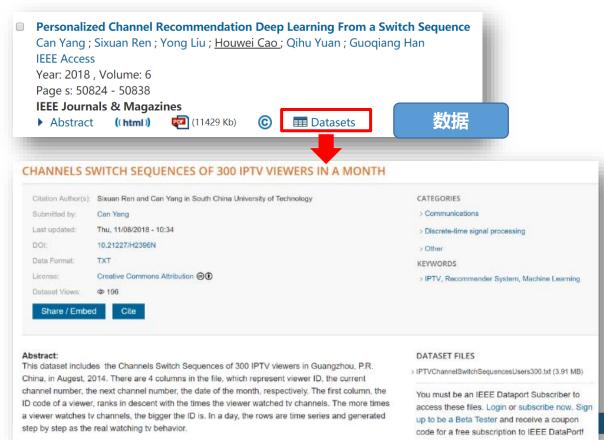


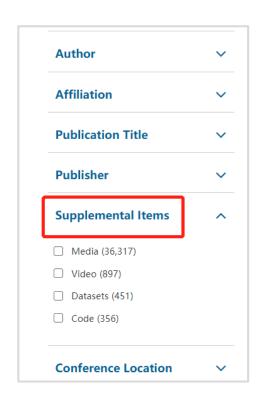


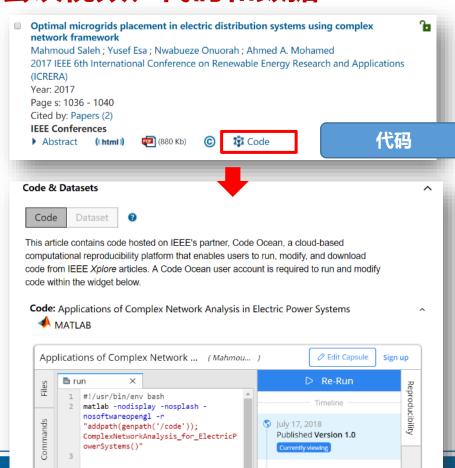






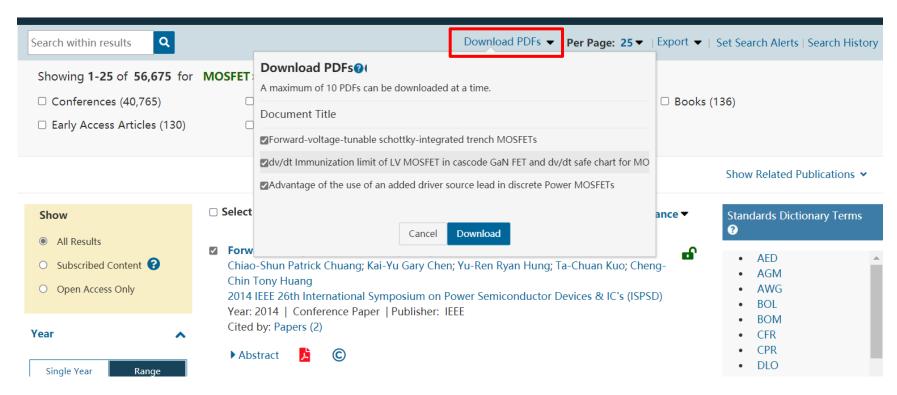






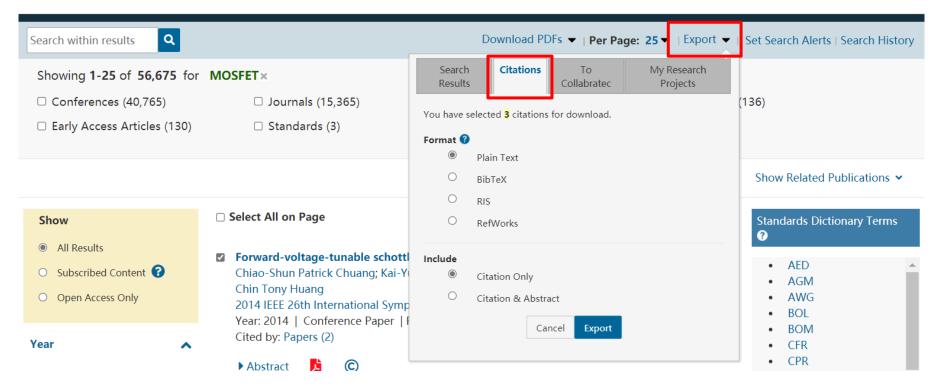


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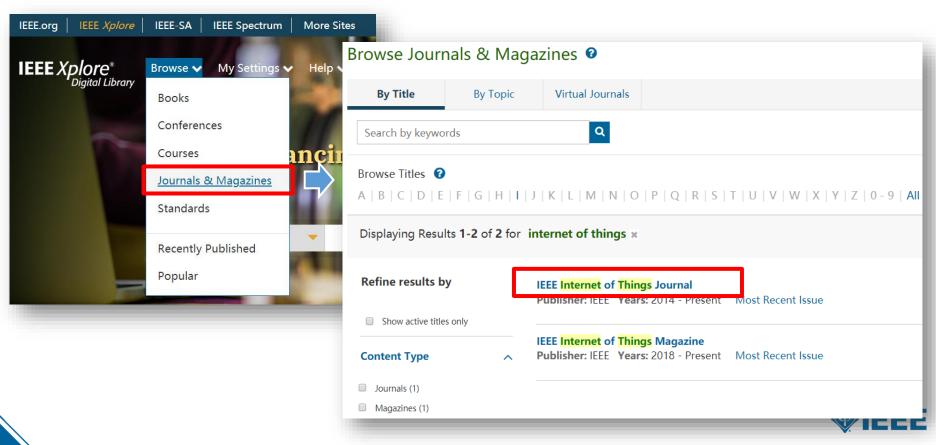


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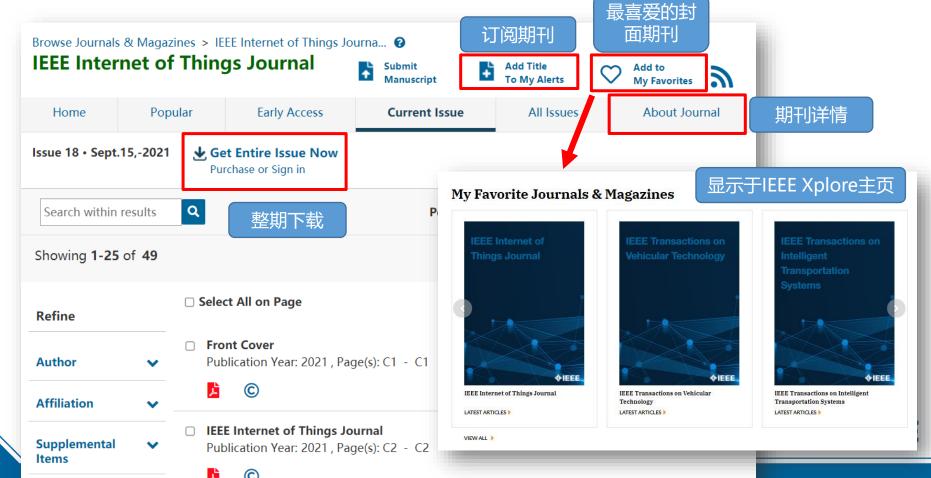




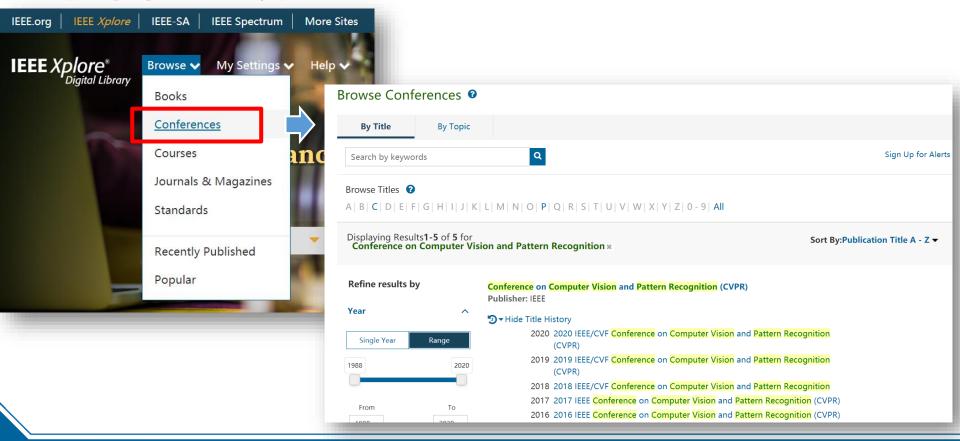
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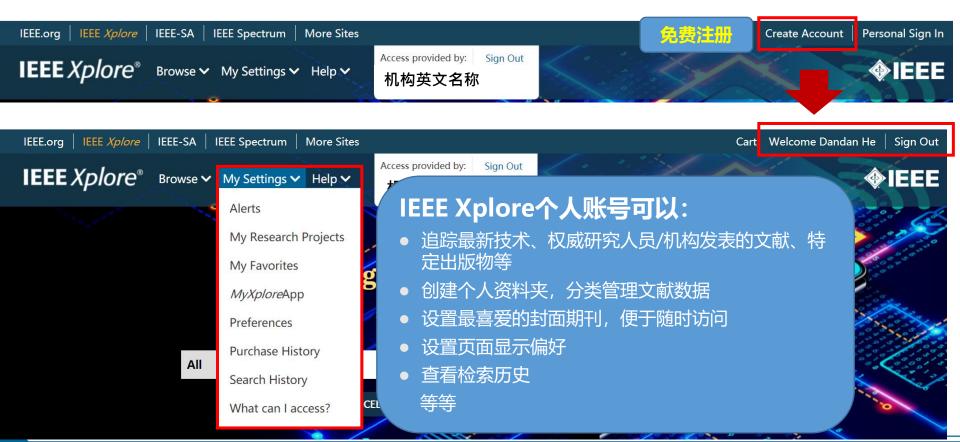
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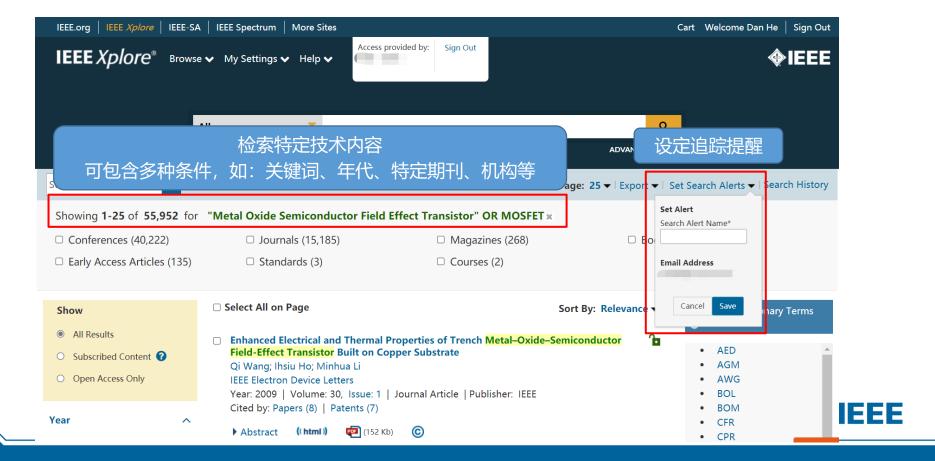
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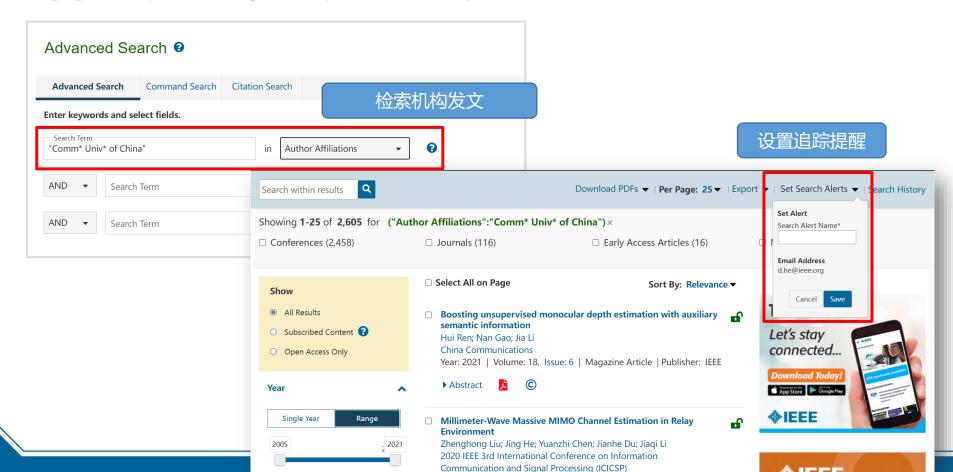
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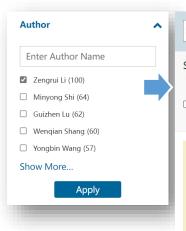
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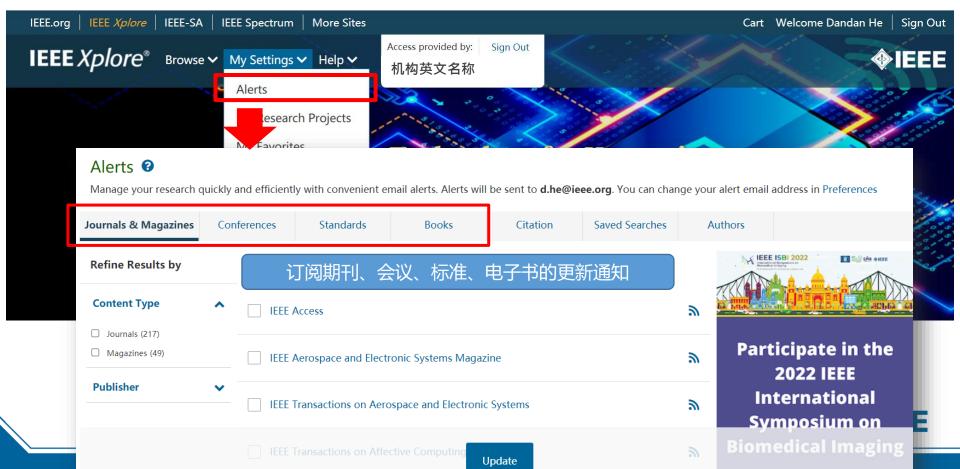


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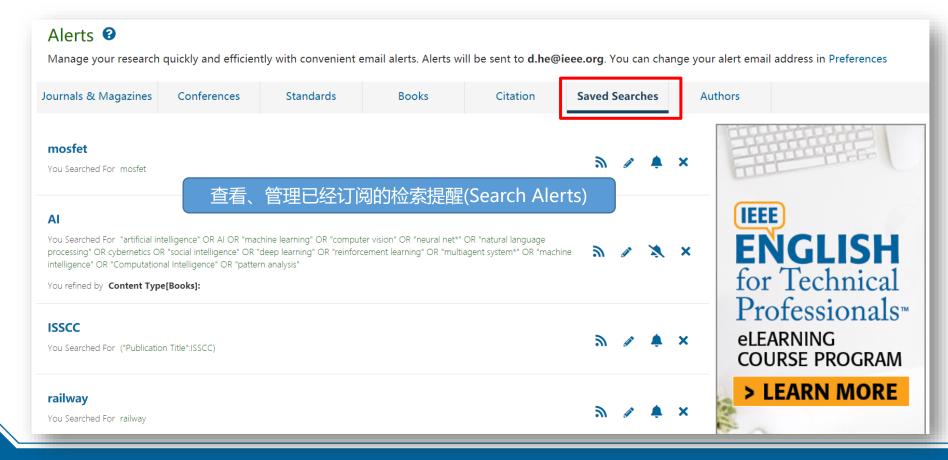




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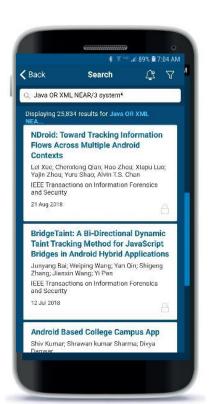
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——半导体领域

技术进步与应用驱动成就IC五十年大发展

论坛介绍

本论坛以1971年Intel第一代CPU芯片4004出现为第一个十年的 起点,回顾之后每一个十年,共五十年(1970-2020)的集成电 路发展历程。这个发展步伐目前依然没有显著放慢。集成电路这 半世纪无与伦比的快速发展依赖于两个基本动力: 永无止境的技 术创新与不断涌现的应用需求。

嘉宾介绍



特邀主讲嘉宾: 余志平教授

清华大学微电子学研究所教授、博士生导师,IEEE Life Fellow。 其专业领域是集成电路计算机辅助设计(ICCAD),主要从事半 身体器件模拟与电路集约模型建模,近年末同时从事硅化网区射频 电路设计与纳电子学研究。已发表学术改立近400篇,合著英、中 文专著各一本。七五计划期间(1966-1990)参与组织的熊猫集 成电路设计系统获1993年国家科技进步一等奖。



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——自动驾驶领域

无人车·平行驾驶·智能交通·智慧城市

论坛简介

随着物联网、云计算、大数据、人工智能、5G、区 块链等新一代信息技术的快速发展,信息系统、物理 系统、人类社会进一步相互融合,形成了工程复杂性 与社会复杂性相耦合的复杂系统,即信息物理社会系 统(Cyber-Physical-Social Systems, CPSS)。IEEE 作为全球最大的科技学会,在物联网、智能驾驶、大 数据等相关领域具有技术权威性。

此次论坛特别邀请了IEEE Fellow,智能控制、智能 机器人、无人驾驶、智能交通等领域早期开拓者之一 的王飞跃教授,为大家带来"基于CPSS的交通5.0: 无人车、平行驾驶、智能交通、智慧城市"的主题报

特邀嘉宾: 王飞跃教授、IEEE Fellow

主要研究复杂系统 智能控制 智能交通 智能机器 人、无人驾驶、平行智能、社会计算、知识自动化等 领域。现为中国科学院自动化研究所复杂系统管理与 控制国家重点实验室主任、《智能科学与技术学报》 主编。曾任IEEE 多个期刊主编。现为IEEE Trans. on Intelligent Vehicles新任主编,欢迎大家投稿!



嘉宾: 何丹丹

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IEEE PELS 网络技术论坛

面向新一代电网的电力电子技术和装备新进展

论坛介绍

本次论坛主题聚焦新一代电网的电力电子技术和装备新 进展,就电力电子系统、能源互联网、无线电能传输等 技术方向的研究及进展进行探讨。

🍗 论坛嘉宾 🎳

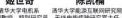


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主题内容	直播日期	直播时间
主题一(a): IEEE Xplore高效 检索、文献调研及热点追踪	9月16日	19:30-20:30
主题一(b): IEEE Xplore数据 库高阶检索	9月23日	19:30-20:30
主題二: IEEE Xplore新动态: 推 动研究与创新	10月14日	19:30-20:30
主题三: IEEE期刊会议投稿流程 与注意事项	10月14日	19:30-20:30
主题四: IEEE科技论文英文写作剖析	10月21日	19:30-20:30
主题五: 以IEEE为例谈专业学协会 对理工科学生职业发展的影响	11月05日	19:30-20:30
主题六: IEEE标准简介	11月12日	19:30-20:30



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