*chips*

MDPI

*Editorial*

# Chips: A New Open Access Journal in the Domain of ICs

**Gaetano Palumbo**

DIEEI (Dipartimento di Ingegneria Elettrica Elettronica e Informatica), University of Catania, 95125 Catania, Italy; gaetano.palumbo@dieei.unict.it

As Editor-in-Chief, it is my honor and pleasure to introduce *Chips* [1], a new online open access journal published by MDPI. The term chip stands for integrated circuit (IC), i.e., a set of electronic circuits on a small, flat piece of semiconductor material (usually, but not always, silicon). Since the late 1950s, when the first ICs were independently realized by J. Kilby at Texas Instruments (end of the 1958) and R. N. Noyce at Fairchild Semiconductor (middle of the 1959), chips have started to revolutionize the world of electronics and, more generally, society as a whole. It is apparent that the proliferation of electronic devices and systems is profoundly affecting all aspects of modern life. Thus, chips, which represent the pillars of electronic systems and are practically used in all electronic equipment, are becoming inextricable and fundamental components of today's modern society, strongly and deeply characterized by various levels of computation and interconnection.

*Chips* has been launched to publish rigorously peer-reviewed articles (such as original research, reviews, and communications) on all aspects of ICs. Therefore, the main scope of this journal is to disseminate novel research and knowledge, as well as the state of the art in terms of IC technologies, design, test and production. The journal offers the opportunity to actively spread new concepts and advancements in the IC domain, and in increasingly interrelated and multidisciplinary areas. The journal will cover chip design, including CAD tools, chip production and their wide spectrum of applications. A non-exhaustive list of potential design topics includes:

- Analog, digital and mixed-signal domains;
- Baseband frequencies, RF (radio frequency) and microwave frequencies;
- All levels of abstraction, from the device or transistor level to the system and architecture level;
- Typical IC products, such as microprocessors and microcontrollers, memories, ASICs (Application-Specific ICs), FPGAs (Field Programmable Gate Arrays), SOCs (System on Chips) and NOCs (Network on Chips);
- All scales of integration, from small (SSI) to giga scale (GSI), passing through MSI (medium scale of integration), LSI (large scale of integration), VLSI (very large scale of integration) and ULSI (ultra large scale of integration).

New and exciting areas, such as the design of integrated flexible electronics, Cry-CMOS (cryogenic CMOS), or the most established integrated optoelectronics and photonics will be considered also.

As far as chip production is concerned, considered fields will include:

- The manufacturing (fabrication and packaging) of chips;
- The testing and evaluation of chips;
- Materials for chips.

Finally, since the pervasiveness of IC includes both established and more recent topics, the journal will consider chip applications in the following fields:

- Environmental issues;
- Automotives;
- Power management;



**Citation:** Palumbo, G. Chips: A New Open Access Journal in the Domain of ICs. *Chips* **2022**, *1*, 51–53. https://doi.org/10.3390/chips1010005

Received: 24 May 2022
Accepted: 24 May 2022
Published: 30 May 2022

- Energy harvesting;
- Consumer electronics;
- Information and computing;
- Communication networks;
- IoT (Internet of Things);
- Artificial intelligence;
- Sensors;
- Cyber–physical systems;
- Quantum computing;
- Biological, chemical and medical applications (lab-on-a-chip, organ-, body-, blood-, and disease-on-a-chip, protein chips, DNA chips, cell chips, bio-MEMS, micro/nano-mechanics, micro/nano-fluidics, high-throughput screening technology, medical science, genomics, proteomics, bioinformatics, and medical diagnostics).

Why does this field of study warrant a new journal? As is well known, according to Moore's law (an empirical relationship that for the last eighty years has correctly forecasted a doubling of the number of IC transistors every two years), the main features of ICs follow an exponential behavior, as in the case of complexity (i.e., the number of transistors, architecture, interconnections and communication) or computing power. As a consequence, the same exponential trend can be found in the research fields and applications of ICs, which are continuously increasing in both number and variety. On the other hand, the number of journals that deal with IC topics, especially those that could be considered flagship, is not increasing at the same rate, being seemingly more linear. From the above considerations stems the opportunity to provide a new communication platform in which high-quality and novel research on IC technologies, design, testing and production can be presented and shared.

As an open access journal with quick publishing, *Chips* aims to provide high visibility and timely impacts for the IC community. This can be guaranteed thanks to the efficient systems and teams that MDPI has developed over the years. It is worth noting that, in order to recognize the value of all in-depth studies, there is no restriction on the length of papers and no additional charge for colored figures. Moreover, details on the derivation of formulae, calculations and experimental procedures may be supplied as Supplementary Materials in electronic file format.

I thank in advance the qualified international Editorial Board, which will be expanded in the near future. The board surely faces great responsibility in making the required effort to launch this new journal, but I am confident that its expertise and judgment will ensure the highest scientific quality in terms of the selection and the review process of the papers, thus allowing *Chips* to become a leading and influential journal in the field of ICs.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Reference

1. *Chips* Home Page. Available online: https://www.mdpi.com/journal/chips (accessed on 27 May 2022).

## Short Biography of Author

**Gaetano Palumbo** was born in Catania, Italy, in 1964. He received a Laurea degree in Electrical Engineering in 1988 and a Ph.D. degree in 1993 from the University of Catania. In 1994 he joined the University of Catania, where he has been a full professor since 2000. His primary research interests are in analog and digital circuits. He has co-authored four books by Kluwer Academic Publishers and Springer, in 1999, 2001, 2005, 2014, respectively, and a textbook on electronic devices in 2005. He is the author of approximately 450 scientific papers in referred international journals (200+) and in conferences. Moreover, he has co-authored several patents. He served as an Associated Editor of the *IEEE Transactions on Circuits and Systems part I* in 1999–2001, 2004–2005 and 2008–2011, and of the *IEEE Transactions on Circuits and Systems part II* in 2006–2007. In the period 2011–2013 he served as a member of the Board of Governors of the IEEE CAS Society. In 2005 he was one of the 12 panelists in the scientific disciplinary area 09—industrial and information engineering of the CIVR (Committee for Italian Research Assessment). In 2015, he was a panelist of the Group of Evaluation Experts (GEV) in the scientific area 09—industrial and information engineering of the ANVUR for the Evaluation of Italian Research Quality from 2011 to 2014. In 2003 he received the Darlington Award.