



FOREWORD

Inaugurated in January 25, 2011, the State Key Laboratory of Analog and Mixed-Signal VLSI (**SKL-AMSV**) at University of Macau (UM) completed this year the first decade of its existence. After the first phase of development (2011-2013) when the *main human and technical infrastructures of the laboratory were set-up* and positively assessed by the MoST after 3 years, we entered a second phase of evolution (2014-2016) where we assisted to the *consolidation and further integration of the different research lines*, already in a new world-class facility in the new UM campus, in Hengqin. In 2017, after the second positive evaluation by the MoST we initiated a new period (2017-2019) where we *maintained our world-level state-of-the-art electronics status while we expanded our commercialization activity*. This, was possible through the set-up of a second branch of the SKL-AMSV in the Microelectronics Center of the Zhuhai UM Research Institute that gradually started the collaboration with the top Chinese companies in electronics by setting in motion several commercial projects. Besides this, we also launched in Hengqin the first spin-off company of UM, designated by Digifluidics, where the CEO is a PhD graduate from the lab. Our dimensions, in terms of human and space resources are still of a medium scale, but the work developed is of extremely high quality, with world-top level results, and we've the ambition to contribute further, with great determination and hard work, for the development of state-of-the-art electronics in China. Subsequently, in our plan for the 4th period of development (2020-2022) we proposed to *advance further the state-of-the-art electronics and microsystems for emerging applications and commercialization*, in order to be in line with our original **Motto: Locally, from (World) Quality towards (National) Quantity**, created in 2011 but that is always present in our minds and reflects well our constant development. Important façades of the SKL-AMSV rigorously documented throughout the years by the papers (chips) published there, are the *IEEE ISSCC* and the *IEEE JSSC*. In the period 2017-2020 with 30 papers in *ISSCC*, we maintained the leadership in China, Hong Kong and Macao, and were consistently yearly in the Top 10 in the World, placed in 2019, with 8 papers (chips) only behind Intel. In addition, between 2018 and 2020 with 29 papers (chips) in *JSSC* we were in 9th place in the World, in a table led by INTEL with 49. Besides, in the period covered by this report (2017-2020) our overall results included: 7 books and chapters; 196 international refereed journal articles (36 in *JSSC*); 110 international conference papers (30 in *ISSCC*); 19 US patents; 8 China Patents; 31 PhD graduates; 37 MSc graduates; 3 Technological Invention Awards from the Macao Science and Technology Development Fund (FDCT), with 1st and 2nd prizes in 2020; 3 FDCT Postgraduate awards (PhD) and 1 *Takuo Sugano Award* for Outstanding Far-East Paper (*ISSCC* 2018) (first attributed to a team from China).

We will continue striving always for the best at the SKL-AMSV!

Prof. Rui Martins

Director, SKL-AMSV

UM, October 5, 2021