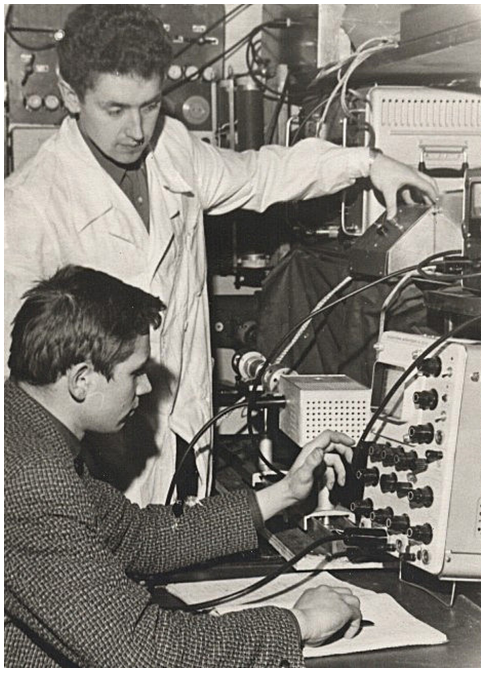
Lithuanian Journal of Physics, Vol. **61**, No. No. 2, pp. i–ii (2021)

DEDICATION TO TWO PIONEERS OF SEMICONDUCTOR PHOTONICS IN LITHUANIA

Remigijus Baltramiejūnas (left) and Juozas Vidmantis Vaitkus (centre) with the Editor-in-Chief (2002–2008) of the *Lithuanian Journal of Physics*, Zenonas Rokus Rudzikas

This year, Juozas Vidmantis Vaitkus, Professor Emeritus at Vilnius University, a member of the Lithuanian Academy of Sciences and well-known expert in semiconductor physics and optoelectronics, celebrates his 80th anniversary. In 2020, we celebrated, though without having him among us anymore, the 75th birth anniversary of another outstanding Lithuanian physicist, Professor Remigijus Baltramiejūnas, who also substantially contributed to paving the way for semiconductors towards photonics applications. This issue of the *Lithuanian Journal of Physics* is dedicated to recognize the achievements of these two Lithuanian experts in semiconductor photonics. The authors of papers in this collection consider Prof. J.V. Vaitkus and Prof. R. Baltramiejūnas their teachers or colleagues. Most of the topics of papers presented here are related to the research activities of these two scientists, but do not by far cover the entire research field enriched by their significant contributions.

In the late 1950s, silicon took the lead over germanium as the semiconductor of choice to start its exponential breeding fuelled by Moore's law to enable the fabrication of your cellphones containing several billions of transistors. Those days, in the Lithuanian town Šiauliai two guys, Juozas and Remigijus, took one after another the lead in the radio shack, where the shortwave radio equipment, still based on vacuum tubes and predominantly home-built, enabled reaching places thousands of kilometers away from their homes. Their first long-distance transition in real space was to Vilnius. Both guys graduated from Vilnius University, the oldest university east from Krakow, became members of its Faculty of Physics and made a significant contribution to the development of their *alma mater* into a modern research university. In the sixties, semiconductor physics was a challenging and bursting research field, and semiconductor electronics turned the vacuum tube-based electronics into an obsolete technology. Meanwhile, Juozas and Remigijus got interested in the interaction of semiconductors with light. This love lasted forever. Invention of a laser in the sixties offered new capabilities in studying photoelectric properties of semiconductors. Juozas and Remigijus were among the first semiconductor researchers to exploit the opportunity. Building their first laser from scratch was their first step to laser spectroscopy and exploitation of nonlinear optical



R. Baltramiejūnas and J.V. Vaitkus in 1970s

phenomena for characterization of semiconductors and, later on, semiconductor nanostructures. These activities involved an avalanche-like increasing number of young physicists and grew up into a solid contribution to the development of photonics, which is currently one of the leading R&D fields in Lithuania.

Serving as the Chair of the Semiconductor Physics Department for two decades and as the Director of the Institute of Applied Research at Vilnius University, Prof. J.V. Vaitkus exploited his bright scientific vision in good times and was able to perform his administrative duties in hard times. Exceptionally broad and deep erudition is his hallmark admired by his colleagues physicists as well as nonscience students and other audiences, who had a chance to attend his lectures or have discussion with the Professor. The broad scope of his scientific vision led his research activities on defects in semiconductors to applications important in high-energy physics experiments at CERN well before Lithuania became an associated member of this prestigious international research organization. His name stands in research papers among a few hundreds of physicists, who contributed to the discovery of the Higgs boson.

Asked to list three most distinguished features of Prof. R. Baltramiejūnas, his former colleagues and students would definitely point out his energy, ability to spot the key issues in any problem, and intrinsically positive attitude towards people, though sometimes invisible due to directness in expression of his opinions. He was bright and attracted bright people. Many physicists, who started their scientific careers in Prof. Baltramiejūnas' research team at Vilnius University, became experts in semiconductor photonics and are active in research. Prof. R. Baltramiejūnas also served as the Director of the Institute of Physics and substantially boosted the development of this research institution.

By publishing this commemorative issue of the *Lithuanian Journal of Physics*, we are joining the celebration of anniversaries of Prof. J.V. Vaitkus and Prof. R. Baltramiejūnas to honour their scientific achievements and impact on semiconductor photonics.

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