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The Continuum of Laser Machining: Micro-Scale to Macro-Scale Performance Machine Customization

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Abstract

Application research in the field of laser macro- and micromachining solutions has become increasingly important, serving as a gateway for the development of next-generation industrial products. In this context, PLS plays a vital role as a bridge between universities, research institutes, and laboratories, and their translation into real industrial applications. With its flexibility and innovation, PLS has contributed significantly to diverse industries by delivering reliable and versatile laser processing machines in Singapore and across the region.

Advances such as novel beam shaping technologies and new optomechanical devices now make it possible to scale processing speeds while maintaining the highest quality of the processed samples. As lasers become more powerful, a critical challenge is ensuring that energy is applied precisely to the workpiece without introducing unwanted heat effects or affecting the material properties. PLS has addressed these challenges by developing solutions in close collaboration with domestic institutes and universities, as well as international partners, through research projects that are directly linked to industrial and R&D applications.

As the major founder, Dr. Wu will share insights into the different application-driven machines developed at PLS, highlighting their role in advancing industrial solutions.

Looking ahead, PLS is well-positioned to extend its proven capabilities into larger markets in Europe and the North America, by tailoring the latest research results and processing technologies to meet the needs of industrial manufacturing. Through customized, high-performance, and reliable laser machines, PLS continues to strengthen the link between cutting-edge research and practical industrial adoption.