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The Research and Development of the High Reliability Laser Welding System

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Abstract: High performance laser welding process for thick materials was developed under the photon national project. In the heavy industries thick materials were required to weld with high quality without welding defects. Laser welding system by using silica fiber was high potential for heavy industries because of high flexibility. We developed the welding system to weld up to 30 mm of stainless steel and up to 20 mm of aluminum alloy with 1 m/min. The simulation technology of development of grasping of laser processing phenomena, in-situ monitoring method and the development of the composition technique of the laser beam were developed.

Key Words: [Laser welding](#), [In-situ monitoring](#), [Welding system](#), [Laser processing phenomena](#), [Laser simulation](#)

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