

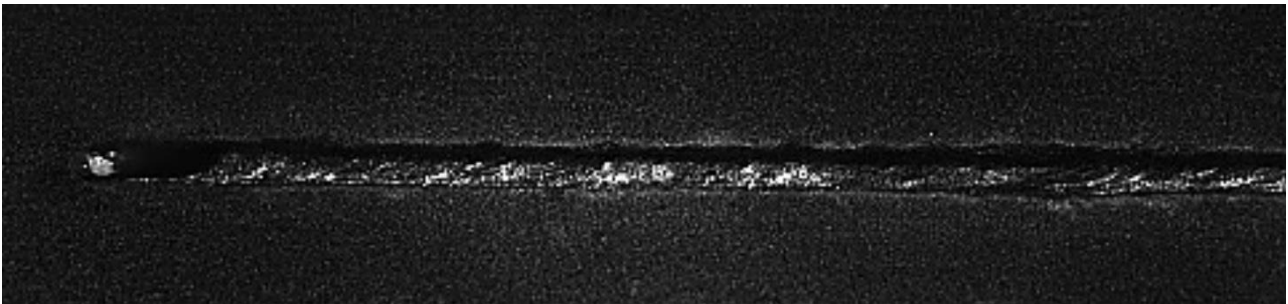
CAVILUX HF supporting the development of an online control of a robot guided laser welding process

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Description

The Zentrum für Mechatronik und Automatisierungstechnik (ZeMA) is working on a system for the online control of a robot guided laser welding process. Various process signals are captured coaxially to the beam of the processing laser and analyzed in real time. In order to correlate the received signals with possible welding failures a CMOS camera is attached coaxially. The camera detects the geometry of the melt pool which results on the interface between work piece and laser beam. Due to the difficult lighting conditions with extreme contrast the measurements are only possible in a narrow band width that is not overexposed by the wavelengths of the laser plasma. Therefore the application requires an external illumination source. ZeMA has decided for the laser illumination CAVILUX HF from the company Cavitar Ltd. Besides the coaxial detection purpose the illumination is also used in combination with a high speed camera in order to gain 3D images as source for redundant information.

The image shows the melt pool and keyhole of the laser process captured with a frame rate of 10.000 frames per seconds



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