

Public Abstract

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Ph.D.

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Investigation of a Spatial Optical Pulse Collection System and the All-Optical Analog-to-Digital Converter

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The designed all-optical analog-to-digital converter has special relevance for high-resolution $\times$ bandwidth applications such as radar image processing. The design of the spatial filter array is based on the silicon-on-insulator process, a design that fulfills requirements of both lower power consumption and smaller integrated circuit chip size.

For the developed calculation model, Babinet's principle is used in order to decompose a complicated structure into different simple components. The calculation model is also adaptive to changes in the spatial filter's components. Structural changes do not require changes to the entire calculation model.