Single Photon Source Driver Designed in ASIC

Bo Feng¹, Futian Liang³, Xinzhe Wang¹, Chenxi Zhu², Yulong Zhu¹, and Ge Jin¹

1. State Key Laboratory of Particle Detection and Electronics, University of Science and Technology of China, Hefei 230026, China

2. School of Microelectronics, University of Science and Technology of China, Hefei 230026, China

3. Hefei National Laboratory for Physical Sciences at the Microscale and Department of Modern Physics, University of Science and Technology of China, Hefei 230026, China,

and Chinese Academy of Sciences (CAS) Center for Excellence and Synergetic Innovation Center in Quantum Information and Quantum Physics, University of Science and Technology of China, Shanghai 201315, China.
The structure of Alice's front-end electronic in the QKD system

The project indicators and the simulation results of the LSD2018

The structure of the LSD2018

The layout of the LSD2018

<table>
<thead>
<tr>
<th>Design indicators</th>
<th>Simulation results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum output frequency</td>
<td>625MHz</td>
</tr>
<tr>
<td>Minimum output pulse width</td>
<td>400ps</td>
</tr>
<tr>
<td>Output current amplitude</td>
<td>20mA-100mA</td>
</tr>
</tbody>
</table>

An eye diagram of the simulation of the LSD2018

The structure of the LSD2018

The layout of the LSD2018

The layout of the LSD2018
Introduction

The design of the single-photon source driver is introduced. The design process includes the simulation, optimization, and fabrication of the driver. The performance of the driver is evaluated through the simulation and experiment.

Simulation

The simulation results show that the driver meets the design requirements. The performance of the driver is further improved through optimization.

Design Scheme

The design scheme includes the selection of components, layout design, and fabrication process. The selection of components is based on the performance requirements. The layout design is optimized to minimize the parasitic effects. The fabrication process is validated through simulation and experiment.

Conclusion

The single-photon source driver designed in ASIC is successful. The performance of the driver meets the requirements for single-photon detection. The design process is validated through simulation and experiment.

Poster

Single Photon Source Driver Designed in ASIC

Title: Single Photon Source Driver Designed in ASIC

Authors: [Author names]

Institution: [Institution name]

Abstract: This poster presents the design and performance evaluation of a single-photon source driver designed in ASIC. The design process includes simulation, optimization, and fabrication. The performance of the driver is evaluated through simulation and experiment. The design scheme includes the selection of components, layout design, and fabrication process. The selection of components is based on the performance requirements. The layout design is optimized to minimize the parasitic effects. The fabrication process is validated through simulation and experiment. The single-photon source driver designed in ASIC is successful. The performance of the driver meets the requirements for single-photon detection. The design process is validated through simulation and experiment.