Python quantum programming languages

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Overview

- What is it?
- Why do we care about it?
- What we've been doing
- Outlook

Motivation quantum nonlinear optics

The good

Spontaneous

- thing 1
- thing 2

i don't know

- thing1
- thing 2

The bad

Spontaneous

- i
- d

A

- o
- n

What do we mean by nonlinear optics?

- Roughly processes that conserve energy but do not conserve photon number.

Gaussian Optics

- Using th

$$\hat{U} = \exp\left[-\frac{i}{\hbar}\left(P \int d\omega_1 \int d\omega_2 \; f(\omega_1, \omega_2) \;\; \hat{a}_s^\dagger(\omega_1)\hat{a}_i^\dagger(\omega_2) \; + h.c. \right)\right] \tag{1}$$

Power JSA Signal & Idler

- We

Types of

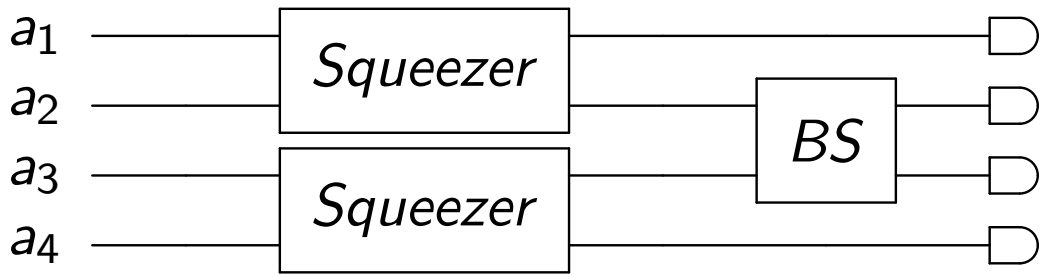

Figure: Two source HOM dip

[0]These are two-mode squeezers

Schmidt decomposition

- with $\psi_k(\omega_1)$ is the k-th row and ω_1-th column of $\mathbf{U}_{(\omega_1,k)}$,
- with $\phi_k(\omega_2)$ is the ω_2-th row and k-th column of $\mathbf{V}^{\dagger}_{(k,\omega_2)}$

Summary

k

References