# LookUpTables1

This folder contains look up tables of the matrices describing the optical transformations implemented by the 4 phase shifters that are relevant for implementing any 3x3 unitaries with inputs/outputs 10, 11 and 12, as well as look up tables for the additional phases introduced into the system by MZIs 9 and 21. Each file contains 256 entries, one for each PWM setting. Each entry has four matrix elements.

These look up tables were created by analysing the data from 20170913, which can be found in this folder.

# 20170926ReconfigurabilityData\_v1

Using the look up tables and my decomposition code, I drew 50 random 3x3 unitaries and programmed the chips to implement them, and measured all 9 input-output combinations. This file contains 50 entries corresponding to these matrices, and each entry contains the target unitary and the measured and normalised input-output matrices.

Note: the target unitary and the measured data can be compared by considering abs(U.\*U) to the measured matrices.

# Decompose33

This is the code that I used to produce the results. It takes a 3x3 unitary as input, reads the look up tables, and yields the PWM settings for the 4 relevant phase shifters.