Assignment 6

https://github.com/jchryssanthacopoulos/quantum_information/tree/main/assignment_6

Quantum Information and Computing
AA 2022–23

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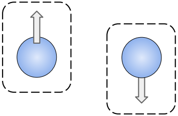
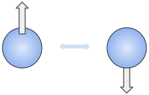
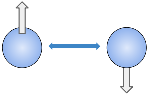
UNIVERSITÀ
DEGLI STUDI
DI PADOVA

Qubit Systems







$$|\Psi\rangle = \Big[(-0.743 - 0.548i)\,|0\rangle + (0.380 - 0.061i)\,|1\rangle\Big] \times \Big[(0.058 - 0.499i)\,|0\rangle + (-0.804 + 0.318i)\,|1\rangle\Big]$$
$$= (-0.317 + 0.339i)\,|00\rangle + (-0.009 - 0.193i)\,|01\rangle + (0.772 + 0.204i)\,|10\rangle + (-0.286 + 0.170i)\,|11\rangle$$

$$\rho = \begin{pmatrix} 0.215 & -0.06 - 0.06i & -0.18 + 0.33i & 0.15 - 0.04i \\ -0.06 + 0.06i & 0.04 & -0.05 - 0.15i & -0.03 + 0.06i \\ -0.18 - 0.33i & -0.05 + 0.15i & 0.64 & -0.19 - 0.19i \\ 0.15 + 0.04i & -0.03 - 0.06i & -0.19 + 0.19i & 0.11 \end{pmatrix}$$

$$\rho = \begin{pmatrix} 0.215 & -0.06 - 0.06i & -0.18 + 0.33i & 0.15 - 0.04i \\ -0.06 + 0.06i & 0.04 & -0.05 - 0.15i & -0.03 + 0.06i \\ -0.18 - 0.33i & -0.05 + 0.15i & 0.64 & -0.19 - 0.19i \\ 0.15 + 0.04i & -0.03 - 0.06i & -0.19 + 0.19i & 0.11 \end{pmatrix}$$

$$\rho = \begin{pmatrix} 0.215 & -0.06 - 0.06i & -0.18 + 0.33i & 0.15 - 0.04i \\ -0.06 + 0.06i & 0.04 & -0.05 - 0.15i & -0.03 + 0.06i \\ -0.18 - 0.33i & -0.05 + 0.15i & 0.64 & -0.19 - 0.19i \\ 0.15 + 0.04i & -0.03 - 0.06i & -0.19 + 0.19i & 0.11 \end{pmatrix}$$