Mecânica Quântica Avançada
Lista 2

Lucas Froguel
IFT

List of Exercises

Exercise 1 (6.5.1 - Independence of the tensor product from the choice of basis)**.** *Verify that the definition (6.3) of the tensor product of two vectors is independent of the choice of basis in $\mathcal{H}_1$ and $\mathcal{H}_2$.*

Answer. Let $|n'\rangle$ and $|m'\rangle$ be two other basis of the Hilbert spaces one and two, respectively. Then, it is true that

$$
\begin{aligned}
|n\rangle &= \sum a_{n'} |n'\rangle \\
|m\rangle &= \sum a_{m'} |m'\rangle
\end{aligned}
\tag{1}
$$