

MPF1204, FISIKA KUANTUM (3 SKS)
Program Studi S2 Pendidikan Fisika



**FAKULTAS KEGURUAN DAN ILMU
PENDIDIKAN
UNIVERSITAS SEBELAS MARET (UNS)
SURAKARTA**

Homework e Learning :

**Angular Momentum :
Commutation Relations and Operators for Angular
Momentum**

**Pertemuan ke-12 :
Jum'at, 8 Mei 2020 TM online Pk. 14.30 wib**

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Exercises: (at paper),

1. Calculate $\langle l, m_1 | L_x | l, m_2 \rangle$ and $\langle l, m_1 | L_y | l, m_2 \rangle$.
2. Calculate the commutators $[x, L_x]$, $[y, L_x]$, $[z, L_x]$, $[x, L_y]$, $[y, L_y]$, $[z, L_y]$. Do you detect a pattern that will allow you to state the commutators of x, y, z with L_z ?
3. Express the spherical harmonics for $l = 0, 1, 2$ in terms of x, y, z .



Thank you