∴   The direction of precession is along $\vec{B}_0$

From eq. 7 :

$$\vec{w} = \frac{g_l \mu_B}{\hbar} \vec{B}_0$$

We see that w increases with increasing $\vec{B}_0$.

Now check the units of w :

$$w = \frac{g_l (J/T) \cdot T}{\hbar (J.s)} = \frac{1}{s}$$

ratio → g_l μ_B B_0

$\vec{w}$ is called Larmor frequency

Example : find w for $B_0 = 1\,T$.
In which part of the electromagnetic
spectrum is this frequency ?

So the magnetic moments precess around
the direction of the magnetic field with
a frequency w : the Larmor frequency.

Let us now see the effect of applying
another magnetic field $\vec{B}_1$, but this
magnetic field is time-dependent and
its direction in the x-y plane , i.e
it is perpendicular to the $\hat{z}$ - direction
(which is the direction of $\vec{B}_0$). See fig. 2