

# 3 Lecture - PHY301

## Important Subjective

**What is inductance in parallel?**

**Answer:** Inductance in parallel refers to a circuit configuration where two or more inductors are connected across the same voltage source in parallel, such that the voltage across each inductor is the same.

**What happens to the total inductance of a circuit when inductors are connected in parallel?**

**Answer:** The total inductance of a circuit decreases when inductors are connected in parallel.

**How can you calculate the total inductance of a circuit with inductors in parallel?**

**Answer:** The total inductance of a circuit with inductors in parallel can be calculated using the formula:  $1/L(\text{total}) = 1/L(1) + 1/L(2) + \dots + 1/L(n)$ , where  $L(1)$ ,  $L(2)$ , ...  $L(n)$  are the individual inductances.

**What is the unit of inductance?**

**Answer:** The unit of inductance is Henry (H).

**What is the effect of increasing the number of inductors in parallel on the total current in the circuit?**

**Answer:** Increasing the number of inductors in parallel increases the total current in the circuit.

**What is the phase relationship between the voltage and current in an inductor in parallel?**

**Answer:** The voltage and current in an inductor in parallel are out of phase, with the current lagging behind the voltage by 90 degrees.

**What is the effect of increasing the frequency of the input signal on the total inductance of a circuit with inductors in parallel?**

**Answer:** Increasing the frequency of the input signal decreases the total inductance of the circuit with inductors in parallel.

**How can you increase the total inductance of a circuit with inductors in parallel?**

**Answer:** The total inductance of a circuit with inductors in parallel can be increased by adding more inductors in parallel.

**What is the effect of adding a resistor in parallel to a circuit with inductors in parallel?**

**Answer:** Adding a resistor in parallel to a circuit with inductors in parallel decreases the overall impedance of the circuit.

**What is the difference between inductance in parallel and inductance in series?**

**Answer:** Inductance in parallel refers to the configuration where two or more inductors are connected across the same voltage source in parallel, while inductance in series refers to the configuration where two or more inductors are connected end-to-end, such that the same current flows through each inductor.