

Course outline

How does an NPTEL online course work?

Week 0

MATLAB

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Tunable Devices and Reconfigurable Circuits: Post Fabrication Phase Error Corrections

Tunable Devices and Reconfigurable Circuits: Thermo-Optic Switching and Tuning

Tunable Devices and Reconfigurable Circuits: Programmable Silicon Photonics

Quiz: Week 10: Assignment 10

Week 10 Feedback Form: Integrated Photonics Devices and Circuits

Week 10 lecture notes

Week 11

Week 12

Download Videos

Week 10: Assignment 10

The due date for submitting this assignment has passed.

Due on 2021-10-06, 23:59 IST.

As per our records you have not submitted this assignment.

- 1) The power consumption to achieve π phase shift is independent of the length of thermo-optic phase shifter.

1 point

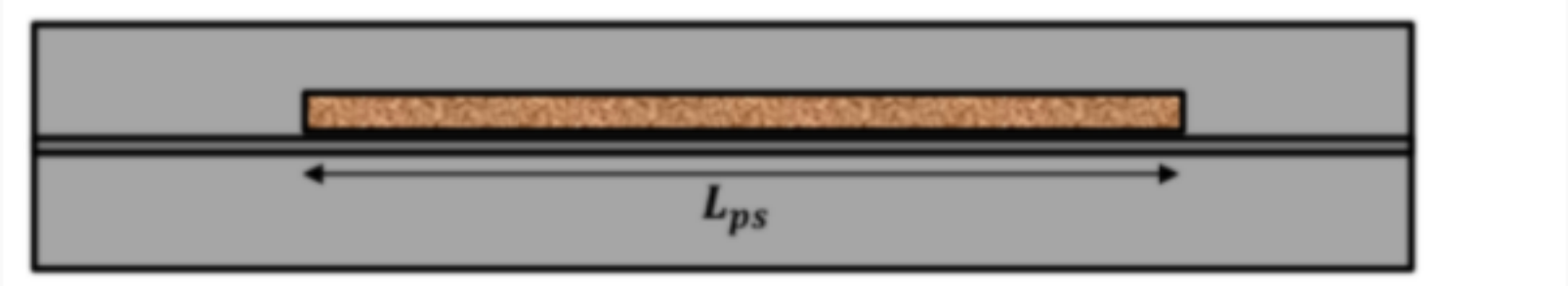


Figure 1: Thermo-Optic Phase Shifter

- ☐ True
☐ False

No, the answer is incorrect.
Score: 0
Accepted Answers:
True

- 2) Which of the following thermo-optic phase shifter has faster response time?

1 point

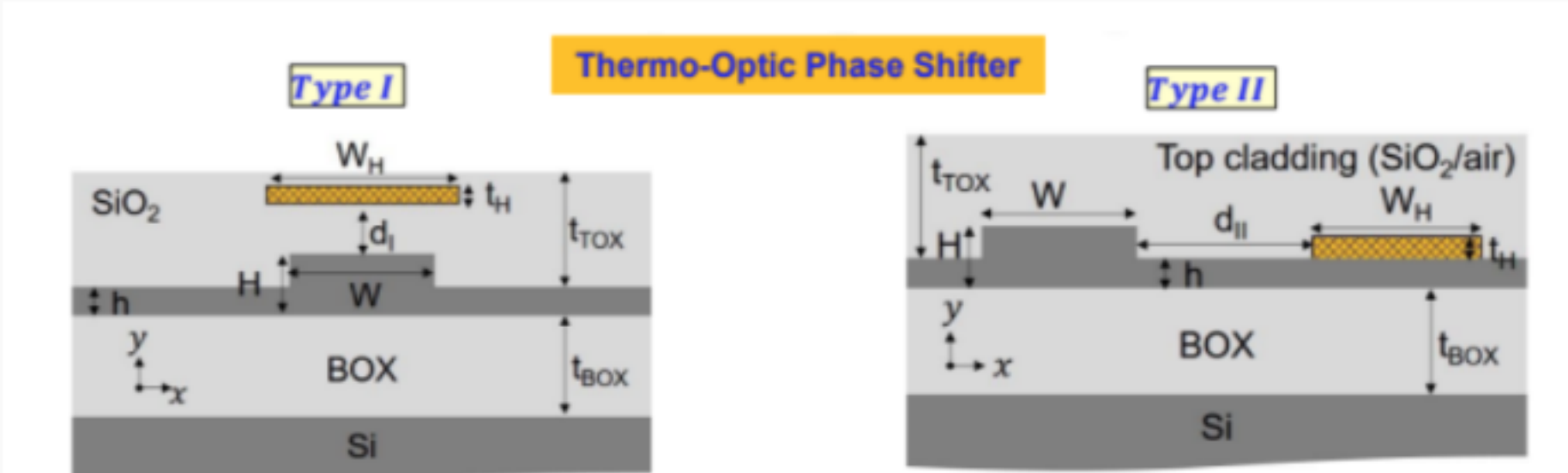


Figure 2: Thermo-optic Phase Shifter

- ☐ Type I
☐ Type II

No, the answer is incorrect.
Score: 0
Accepted Answers:
Type II

- 3) For a tunable basic unit (TBU), shown in Figure. 3, the phase at the output ports can be tuned without any effect on the amplitudes by tuning

1 point

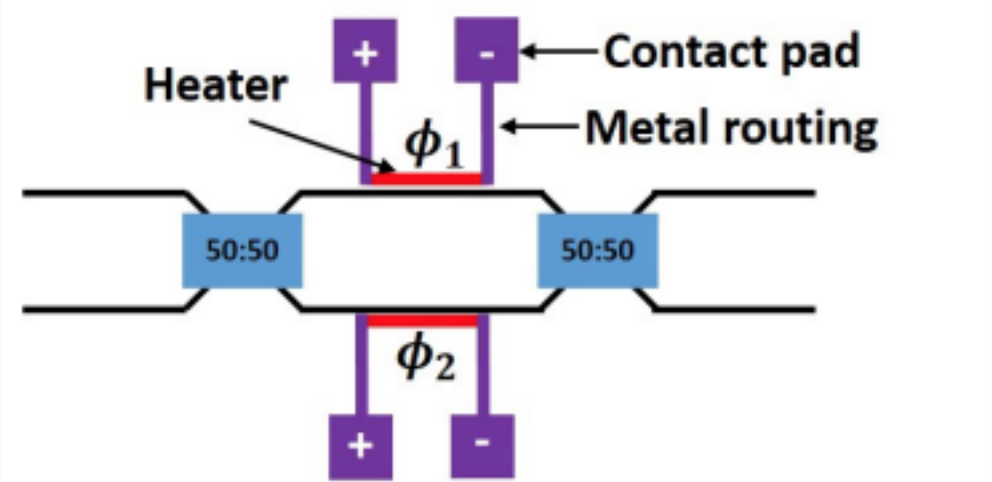


Figure 3: Tunable basic unit

- ☐ only ϕ_1 , but not ϕ_2
☐ only ϕ_2 , but not ϕ_1
☐ both ϕ_1 , ϕ_2 by the equal amount
☐ both ϕ_1 , ϕ_2 independently
☐ not possible

No, the answer is incorrect.
Score: 0
Accepted Answers:
both ϕ_1 , ϕ_2 by the equal amount

Common data for questions 4 – 5: Consider a TBU integrated with microheaters in two different configurations as shown in Figure. 4.

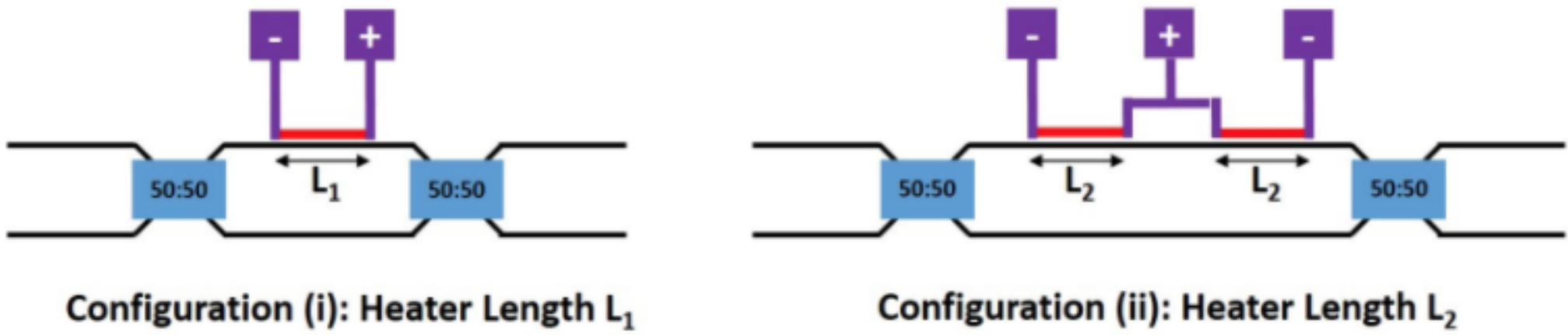


Figure 4: Tunable basic unit integrated with microheaters

- 4) If $L_2 < L_1$, the voltage required to apply π phase difference across the TBU arms is less for

1 point

- ☐ configuration (i)
☐ configuration (ii)

No, the answer is incorrect.
Score: 0
Accepted Answers:
configuration (ii)

- 5) If $L_1 = L_2$, the power required to apply π phase difference across the TBU arms is same for the both configurations.

1 point

- ☐ True
☐ False

No, the answer is incorrect.
Score: 0
Accepted Answers:
False

- 6) The thermal relaxation time of the integrated microheater is independent of the geometry of the microheater.

1 point

- ☐ True
☐ False

No, the answer is incorrect.
Score: 0
Accepted Answers:
False