

# **LASERS**



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# **LASER- INTRODUCTION**

“Laser” is an acronym for Light Amplification by Stimulated Emission of Radiation.

A **laser** is a device that emits light through a process of optical amplification based on the stimulated emission of electromagnetic radiation.

# TYPES OF LASERS

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graph TD; A[TYPES OF LASERS] --> B[RUBY LASER]; A --> C[Nd-YAG LASER]; A --> D[He-Ne LASER]; A --> E[CO2 LASER]; A --> F[SEMI-CONDUCTOR LASER];
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**RUBY  
LASER**

**Nd-YAG  
LASER**

**He-Ne  
LASER**

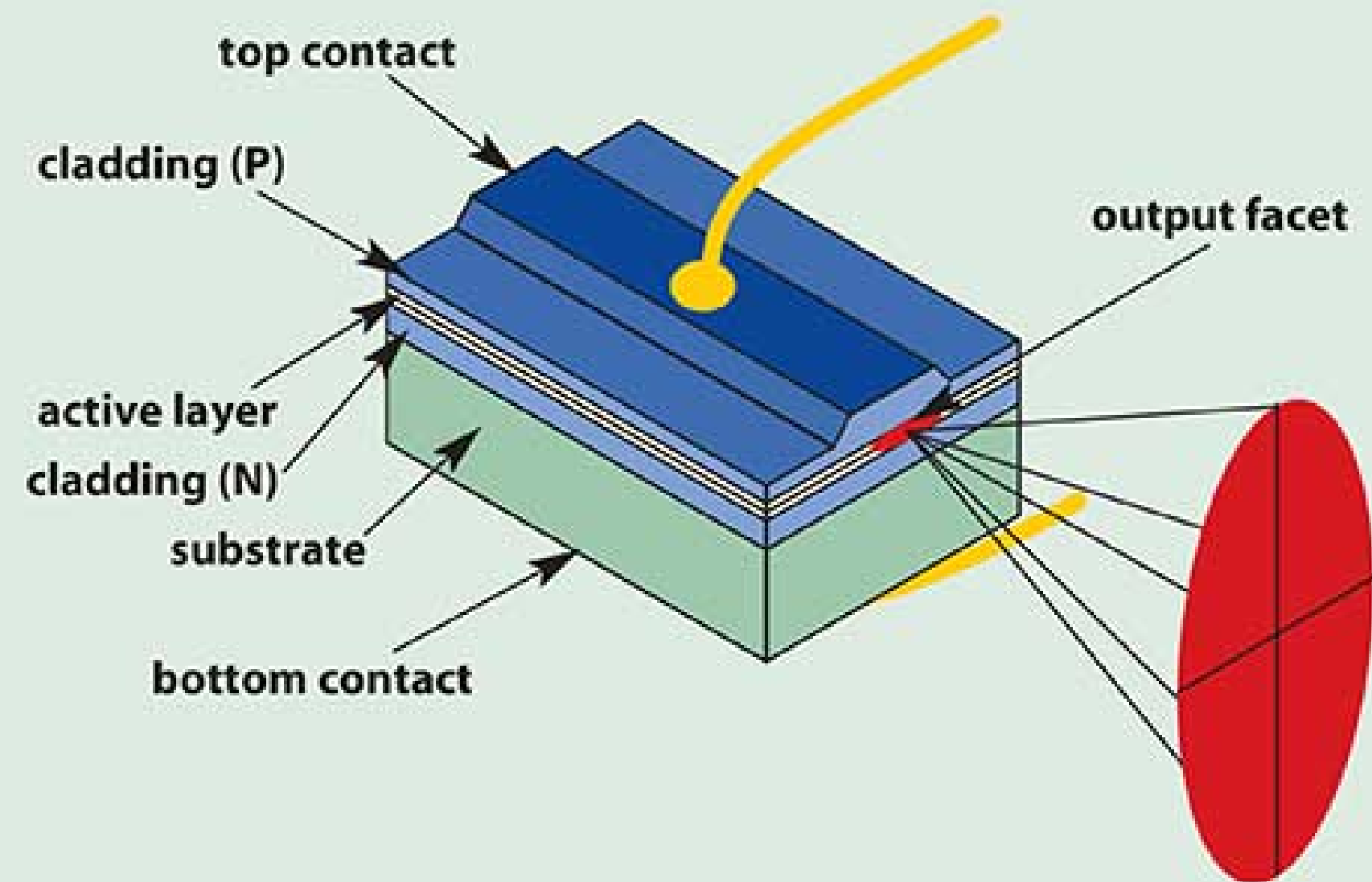
**CO2  
LASER**

**SEMI-  
CONDUCTOR  
LASER**

# **SEMI-CONDUCTOR LASER**

**In this presentation we will emphasize of on  
the SEMI-CONDUCTOR LASER.**

**Semiconductor lasers are solid-state lasers based on semiconductor gain media, where optical amplification is usually achieved by stimulated emission at an interband transition under conditions of a high carrier density in the conduction band.**



# **APPLICATIONS OF SEMI-CONDUCTOR LASERS**

- Laser have been used for measuring distances , so they are very useful for surveying and ranging.
- Lasers are suitable for communication and they have significant advantages because they are more nearly monochromatic.
- Laser lights are highly intense and used for welding, cutting of materials, machining and drilling holes.

- Lasers are used in eye surgery , treatment of dental decay and skin decay.
- Lasers are used in Barcode scanners in markets and supermarket.
- Lasers are used in printers.
- Lasers are used in Photodiode detection.



## **ADVANTAGES OF SEMI-CONDUCTOR LASERS**

- Semi-conductor lasers are easy in operating.
- Long life
- Highly monochromatic and continuous beam.
- excellent efficiency.

## **DISADVANTAGES OF SEMI-CONDUCTOR LASERS**

- It has got low power about 200 mW.

**THANK YOU!**