ARGON ION LASER

Medical laser applications
laboratory

INTRODUCTION

It is one of the types of ionic lasers that use noble gas as a medium for the laser.

It was invented by the scientist William Bridges in 1964 and is considered one of the most famous types of lasers.

The argon laser can generate a large number of separate lines with wavelengths ranging from the UV region (275.4 nm) to the near infrared region (752 nm).

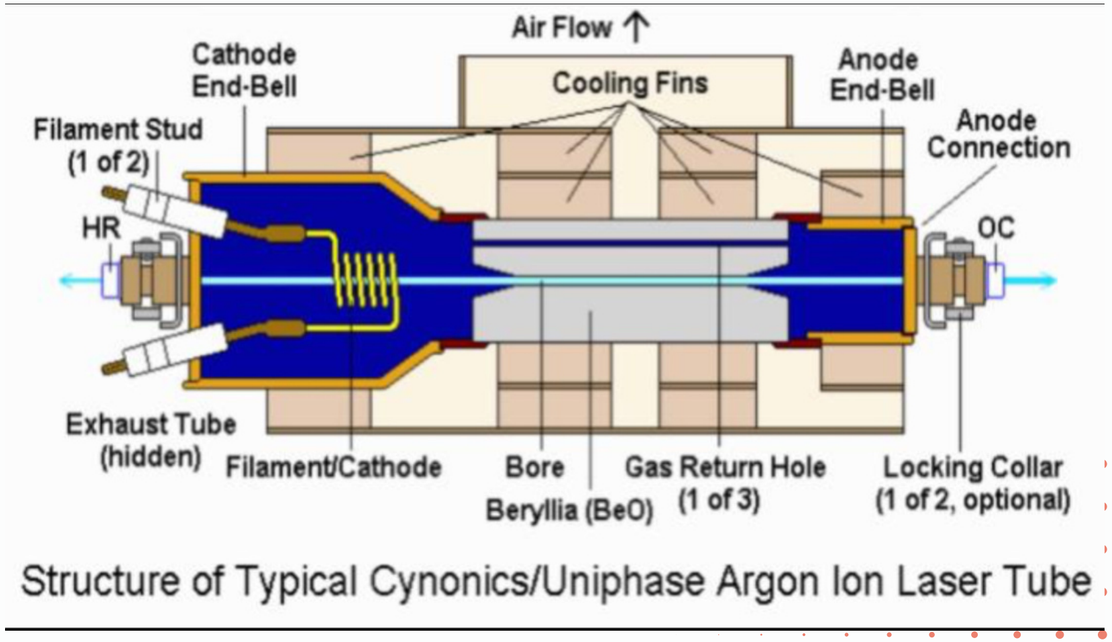
STRUCTURE

The main components of an argon laser system are :

1-power source

2-plasma tube

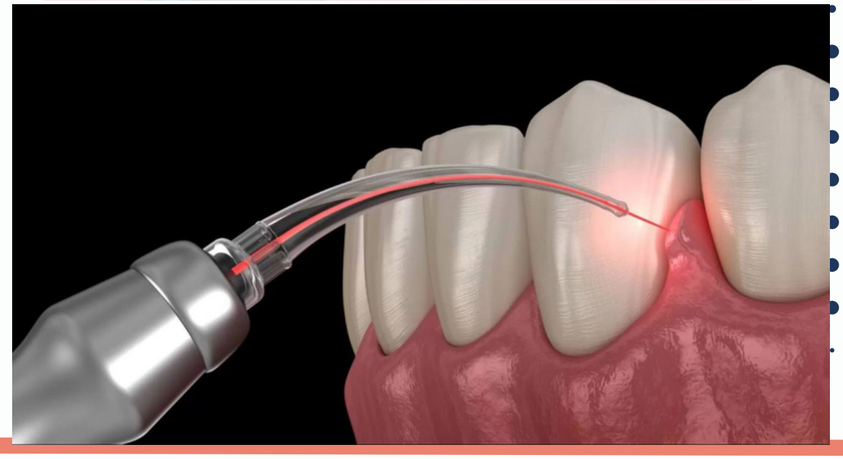
3- resonant assembly



Structure of Typical Cynonics/Uniphase Argon Ion Laser Tube

USES OF ARGON LASER IN DENTISTRY:

1- Surgery,
2- Place the composite resin
3- Procedures for bonding enamel and ivory
4- Preventive dental treatments
5- Endodontic procedures



USES OF ARGON LASER IN OPHTHALMOLOGY:

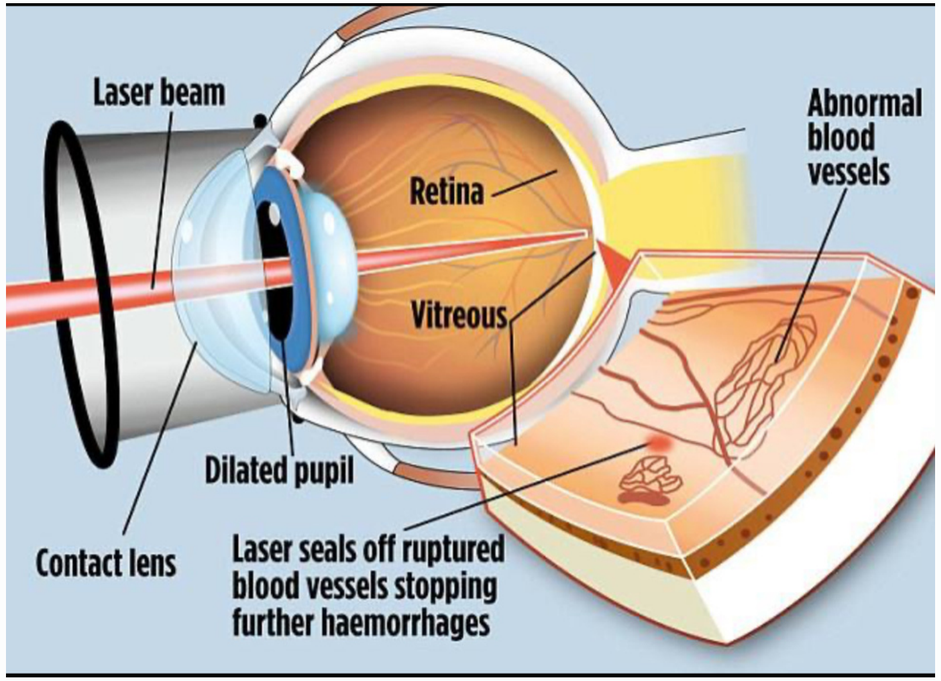
1-Glaucoma

2- Diabetic ehe disorders

3-Some types of holes and retinal tears.

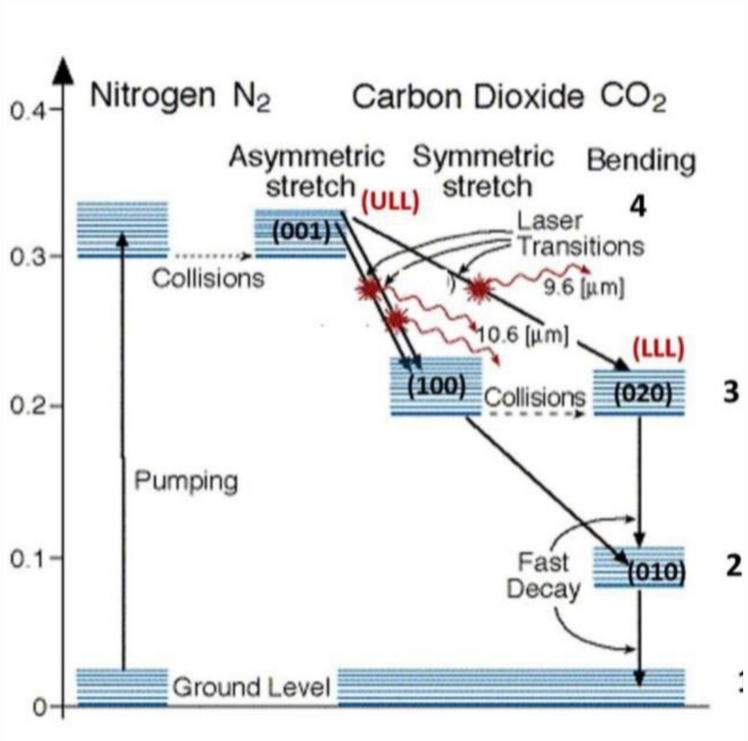
4-Modifying the crystal lens

5- Blood vessels in the retina



CO2 LASER

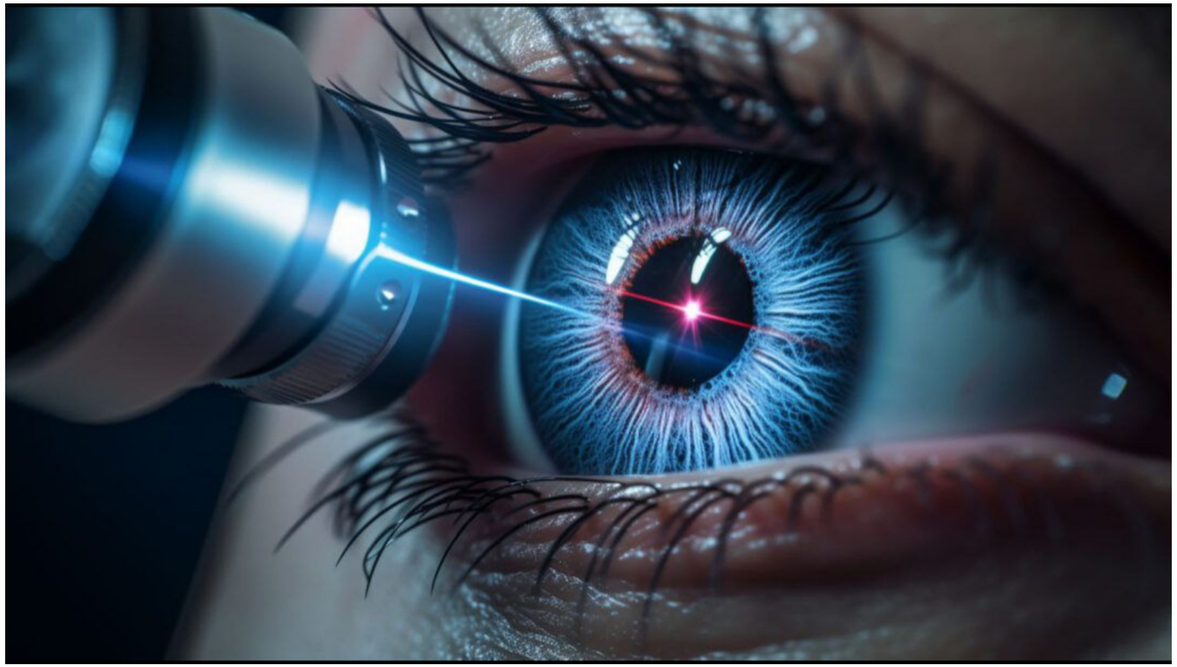
INTRODUCTION



Carbon dioxide laser devices are one of the most powerful laser devices that operate on the continuous wave principle, and are characterized by being highly effective. They emit a laser beam in the infrared field, in which the wavelengths of the main beam are between 9.4 and 10.6 micrometers.

SOME MEDICAL APPLICATIONS OF CO2 LASERS INCLUDE:

1. Skin and plastic surgery.
2. Eye surgery.
3. Oncology surgery.
4. Treating burns.
5. Small blood vessel treatment.



WHEN THE CO2 LASER INTERACTS WITH THE SKIN, IT PRODUCES SEVERAL EFFECTS THAT DEPEND ON THE ENERGY LEVEL AND WAVELENGTH USED, INCLUDING:

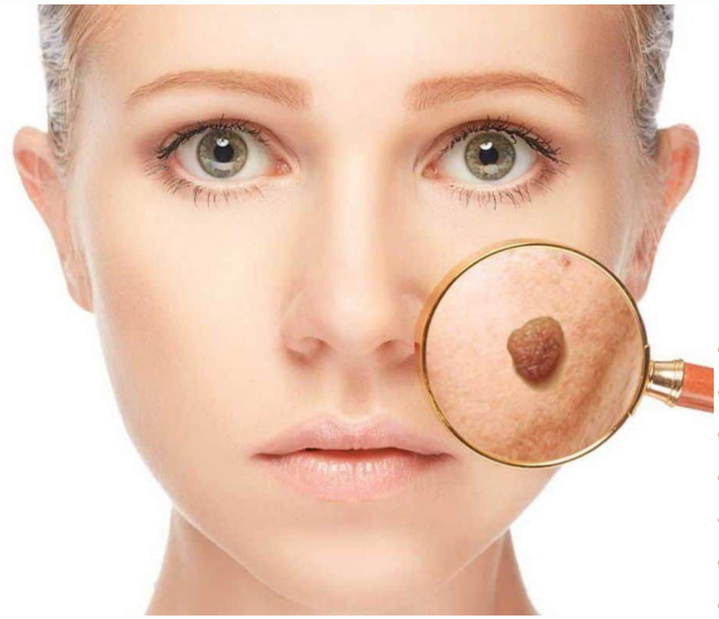
- TISSUE EVAPORATION:
- STIMULATE SKIN REGENERATION:
- REDUCE SKIN DAMAGE.
- REDUCING INFLAMMATION

When the CO2 laser interacts with the skin, it produces several effects that depend on the energy level and wavelength used, including:

1. Tissue evaporation:
2. Stimulate skin regeneration:
3. Reduce skin damage.
4. Reducing inflammation

The CO_2 laser interacts with the skin by heating and vaporizing the skin tissue. The affected skin is the skin itself, where CO_2 laser can be used

- To reduce wrinkles,
- Removal of moles,
- Scar treatment,
- and improve the overall appearance of the skin.



Co2 laser damage to the skin

1-Skin irritation
2. -Redness of the skin
3. -Swelling of the skin
4. -Risk of skin pigmentation
5. -Risk of burns
6. - Risk of icing