

Interstitial Laser Thermal Therapy for Prostate Cancer

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Prostate Cancer – Fast Facts

- 1 in every 7.1 men in Canada is diagnosed with prostate cancer
- The second leading cause of cancer
- Usually occurs in older men

Current Treatments

- Brachytherapy
- Radical prostatectomy
- Radical Radiotherapy
- High Intensity Focused Ultrasound
- Hormone Therapy

Interstitial Laser Thermal Therapy

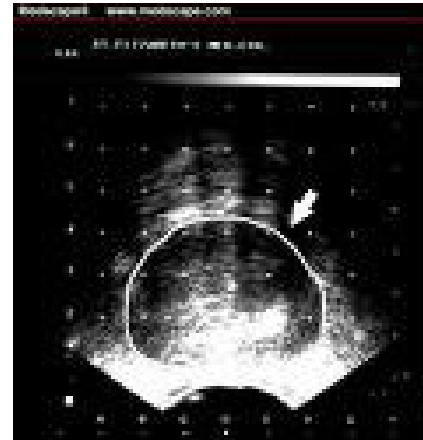
- Pre-op: Image tumour using MRI
- Intra-op: Image via Ultrasound inserted into rectum
 - Map MRI to Ultrasound image
- Insert the laser fiber into the vicinity of the tumour and ablate

The Laser System

- Use an 805 nm laser - near infrared
- Heat the tissue to about 55°C



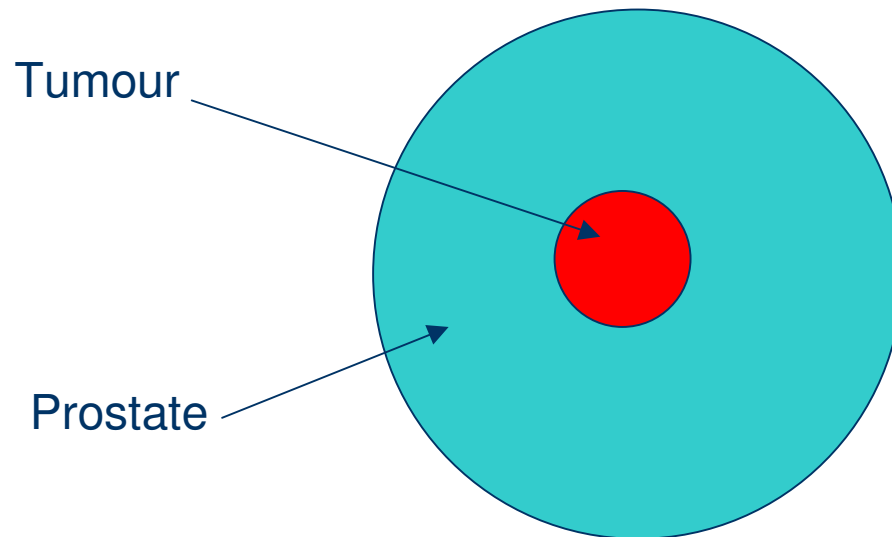
Template



Ultrasound Image

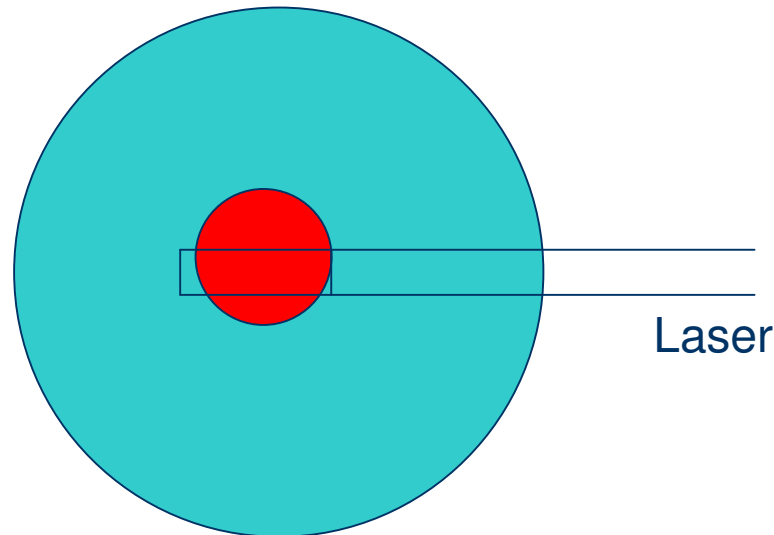
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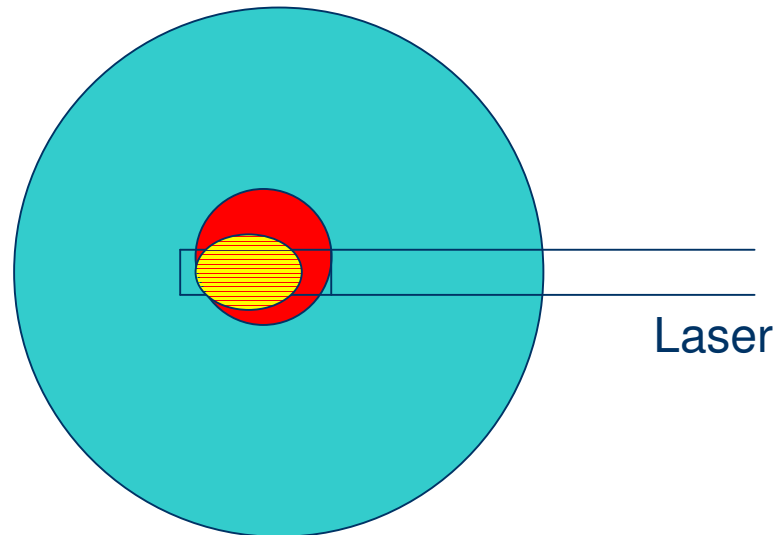
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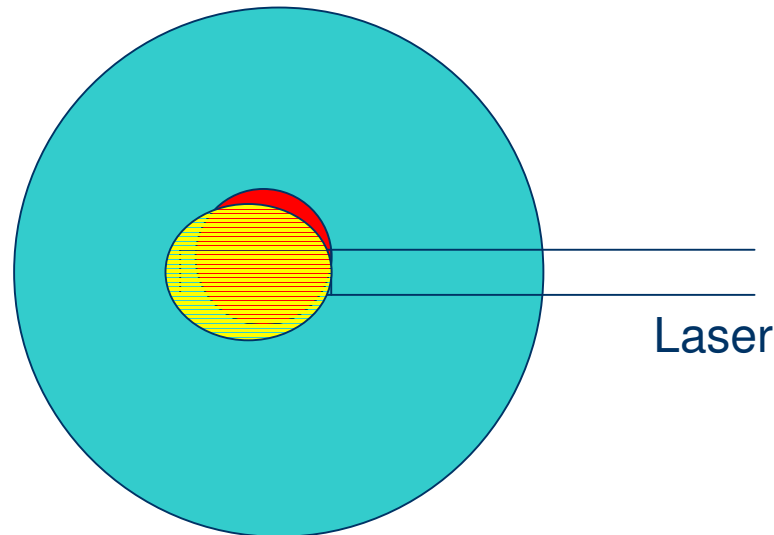
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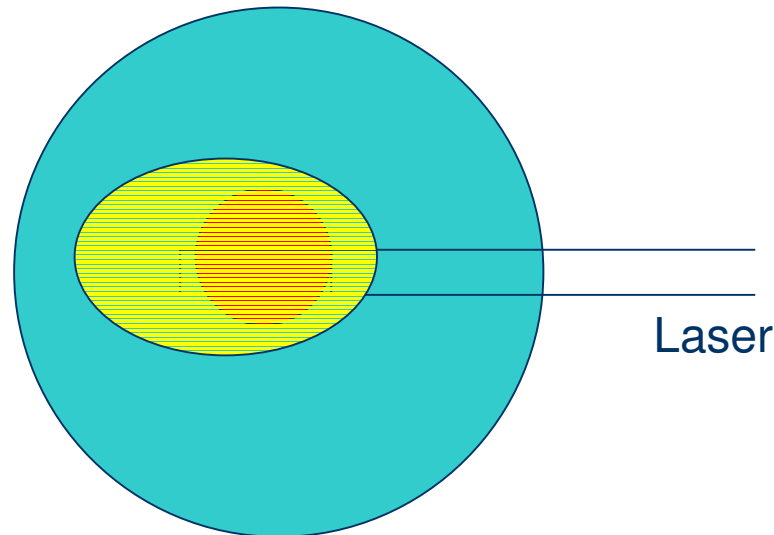
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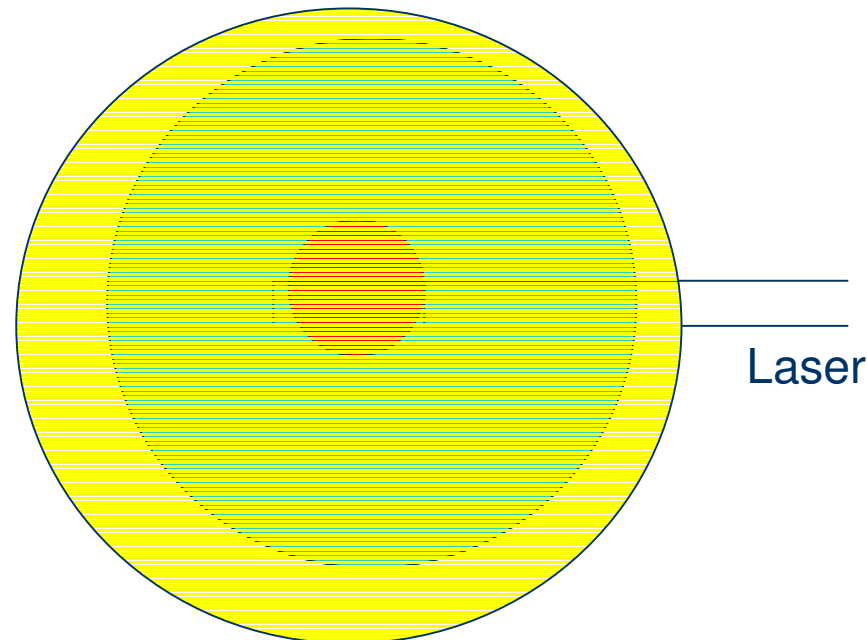
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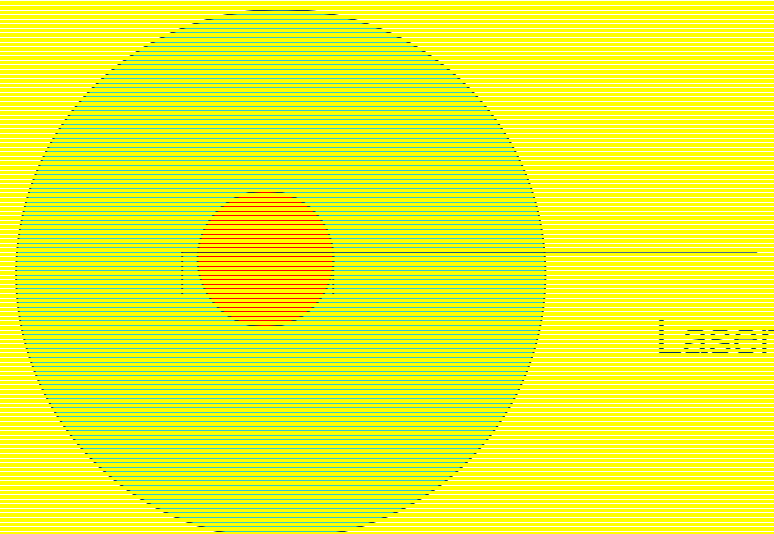
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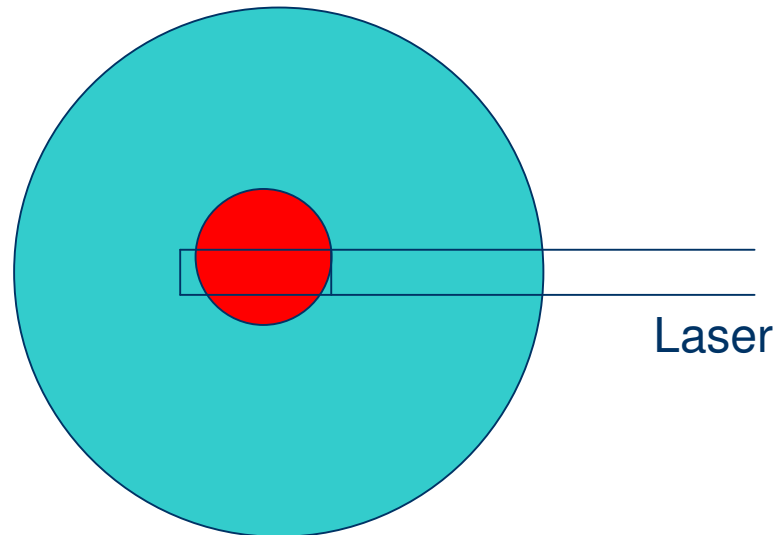
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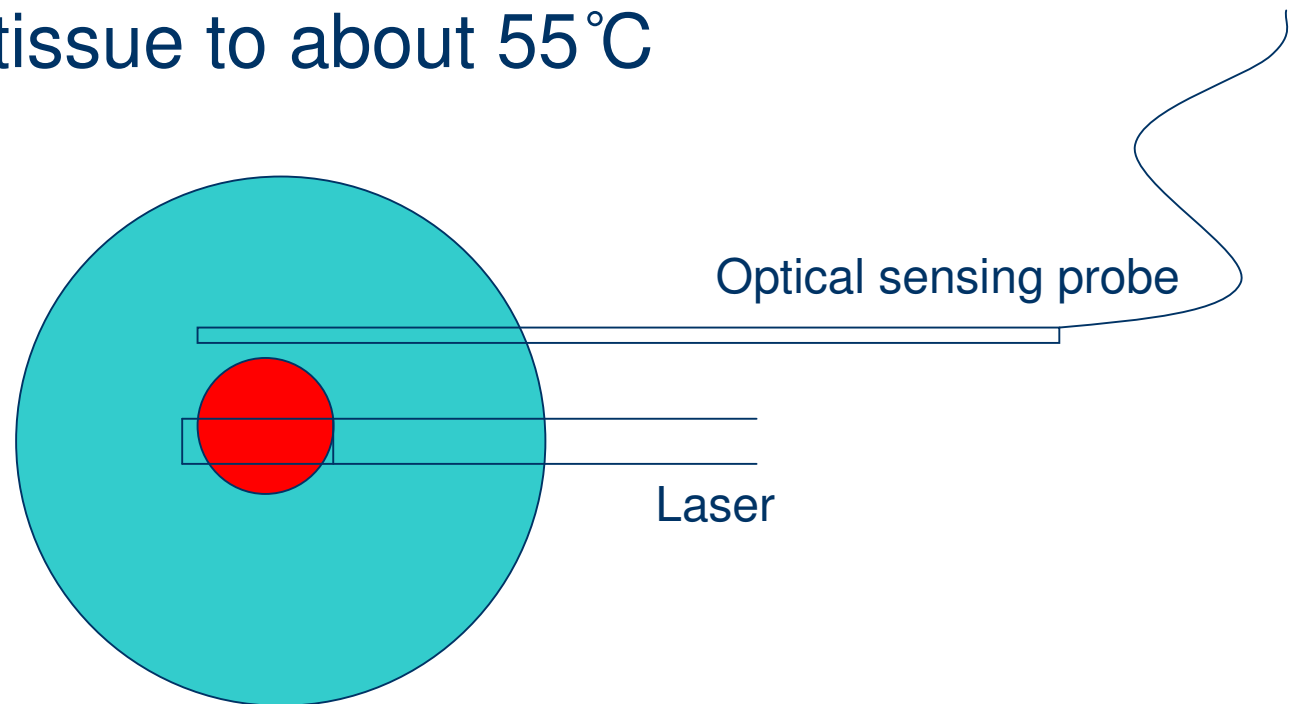
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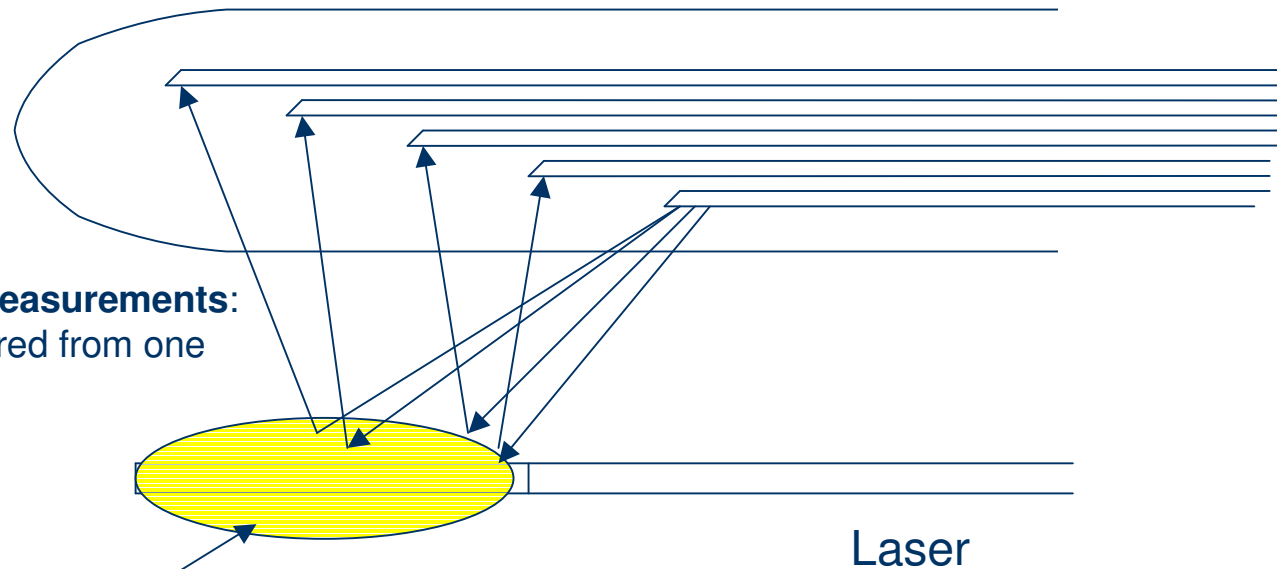


Optical Sensing Probe

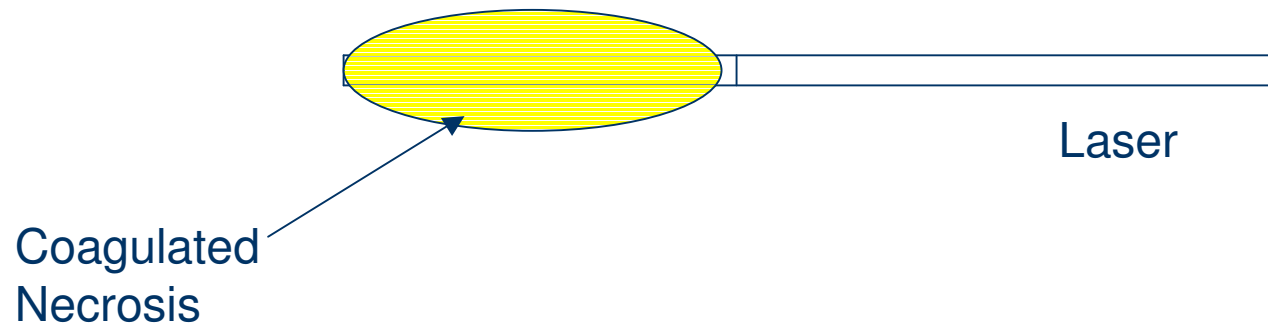
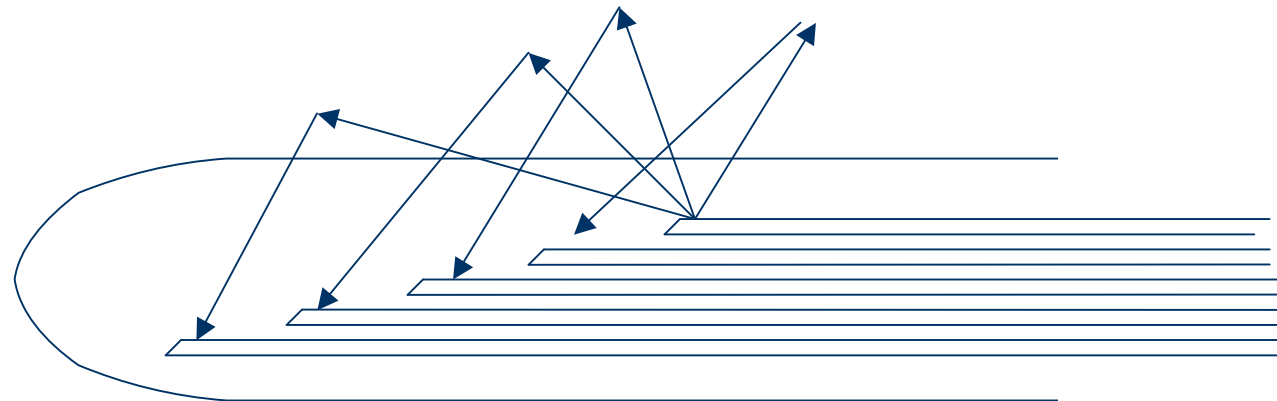
Optical Sensing Probe: 1 Light Emitting Diode source
4 Optical sensors

Radiance Measurements:
Light measured from one
direction

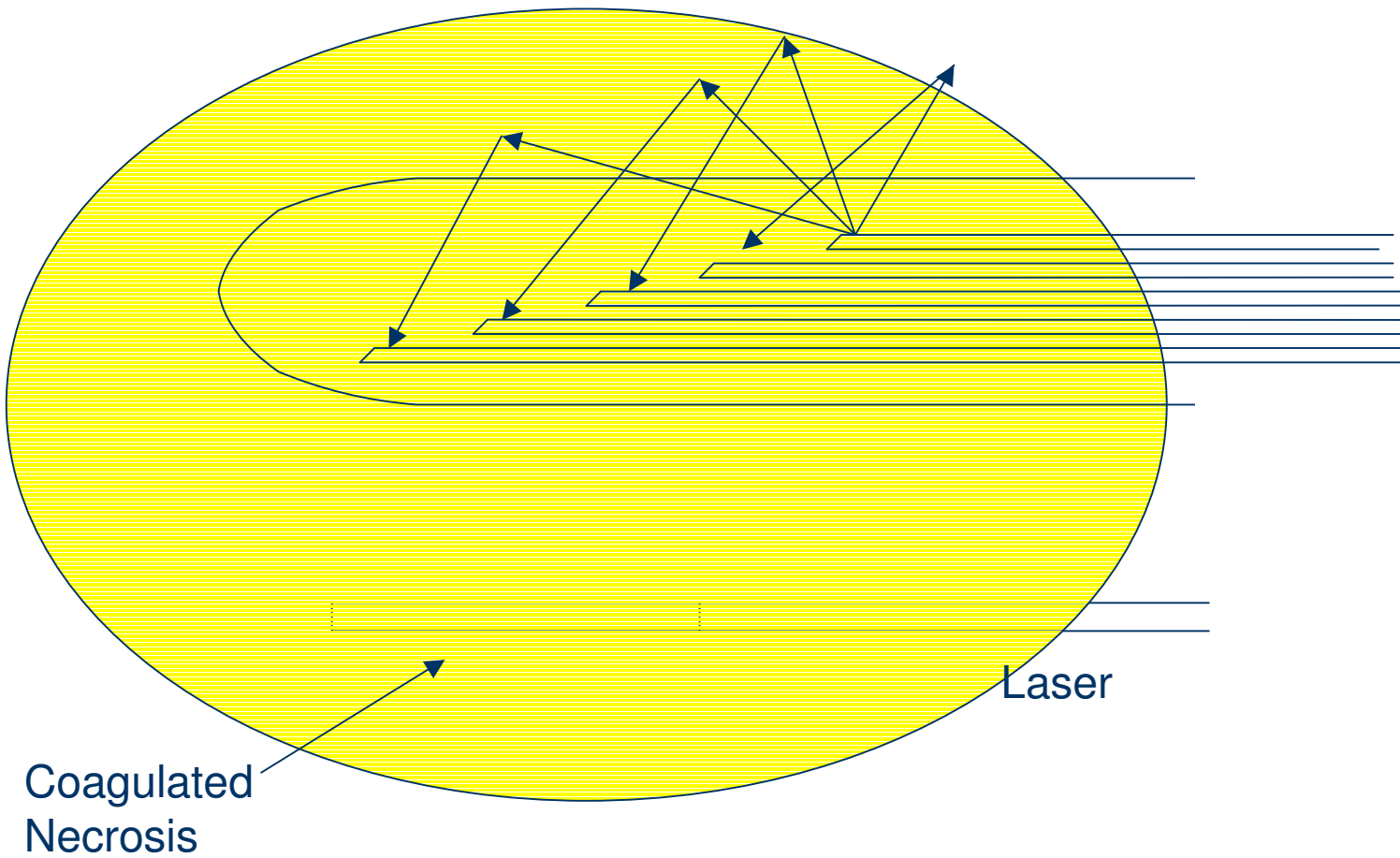
Coagulated
Necrosis



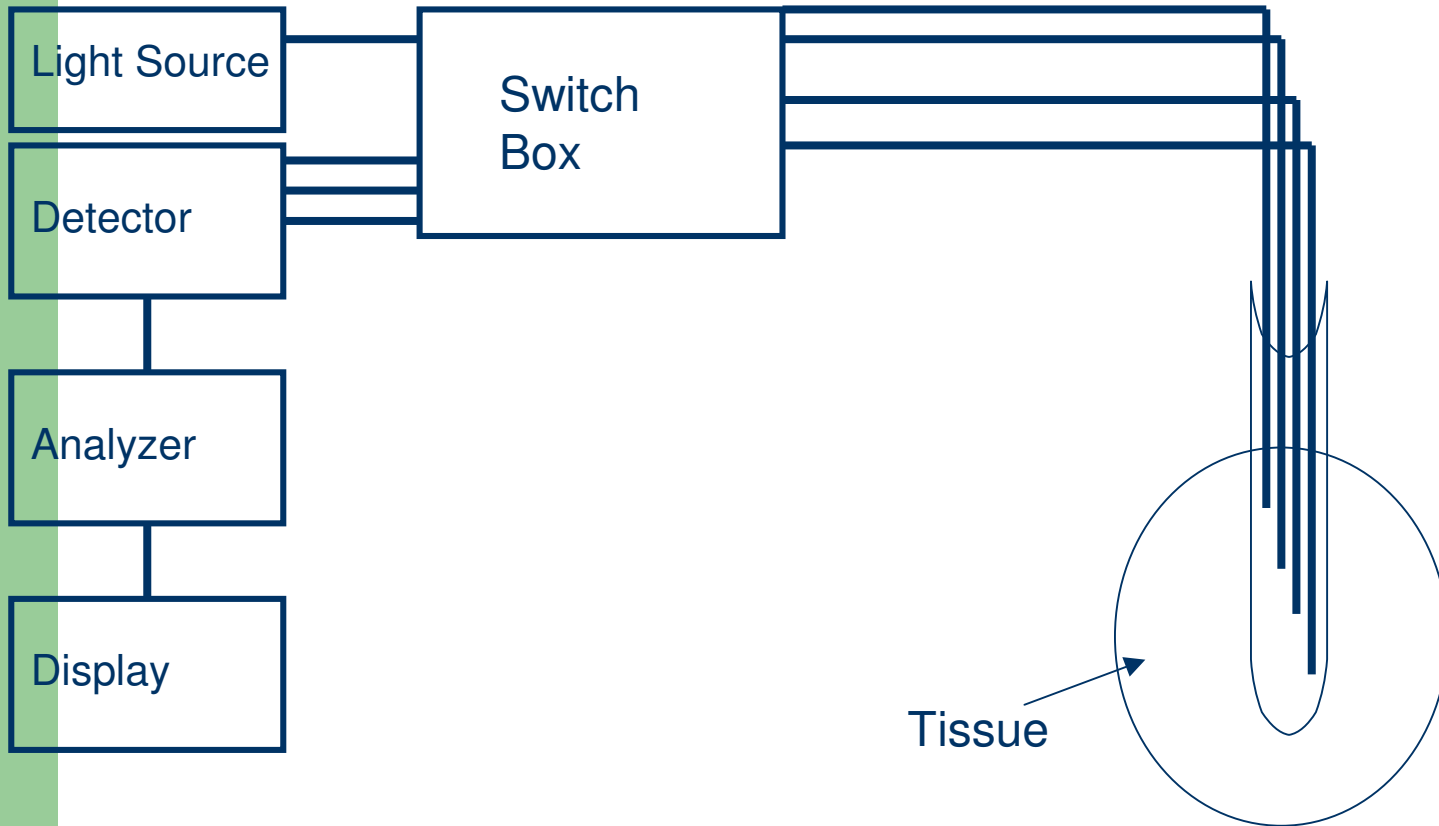
Optical Sensing Probe



Optical Sensing Probe



Total System



Optical Sensing Probe

- Benefits:
 - Near instantaneous measurements
 - Several fibers to map out larger volume in real time

Patient Benefits

- Minimally invasive
 - Small scar
 - Fast recovery
- Go home the same day
 - Go to work the next day
- Low risk of side effects



The End

