

# Pencitraan Fotoakustik dan Aplikasinya

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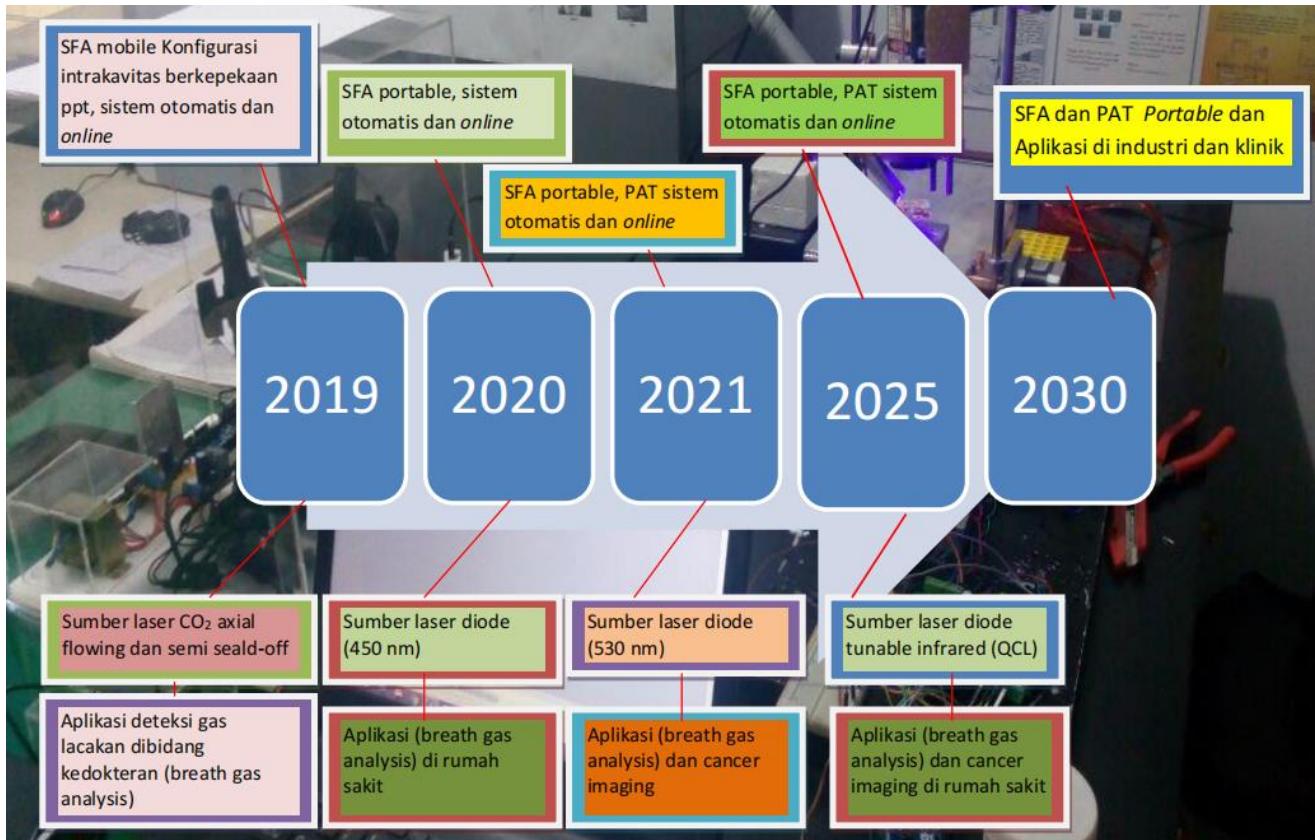
Grup Riset Fotoakustik

KBK Fisika Terapan

Lab Fisika Atom dan Inti Departemen Fisika

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# Roadmap Grup Riset Fotoakustik



# Principle of Photoacoustic Tomography (PAT)

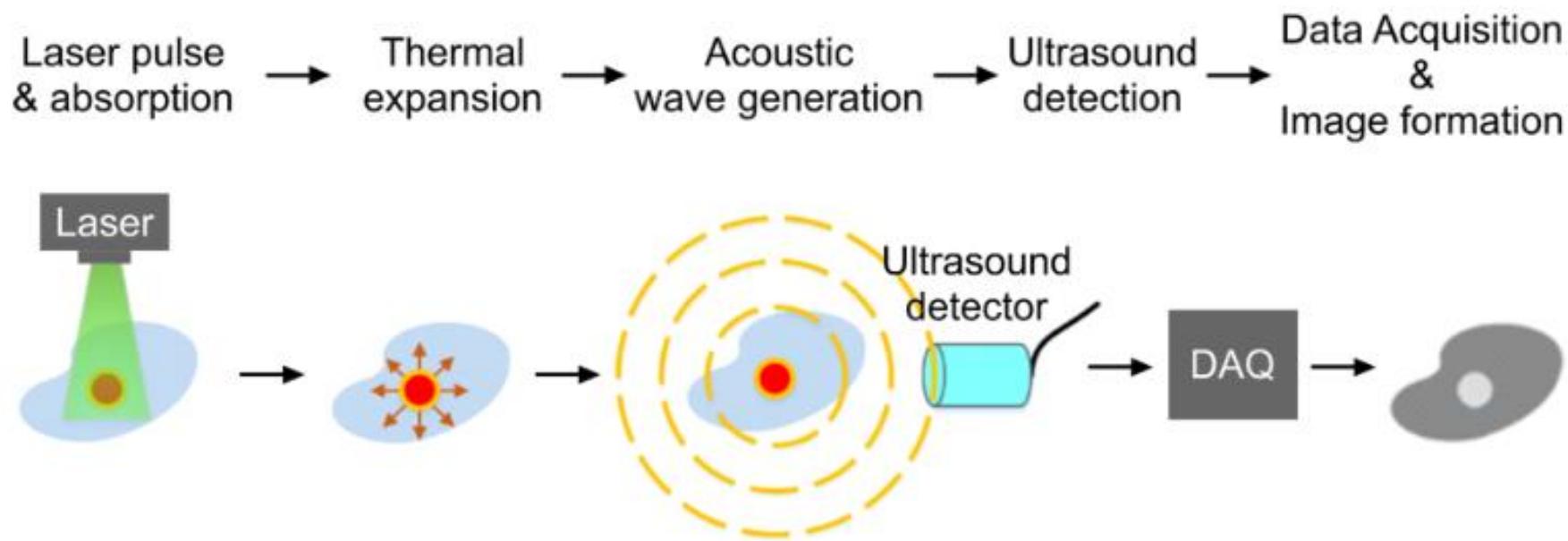
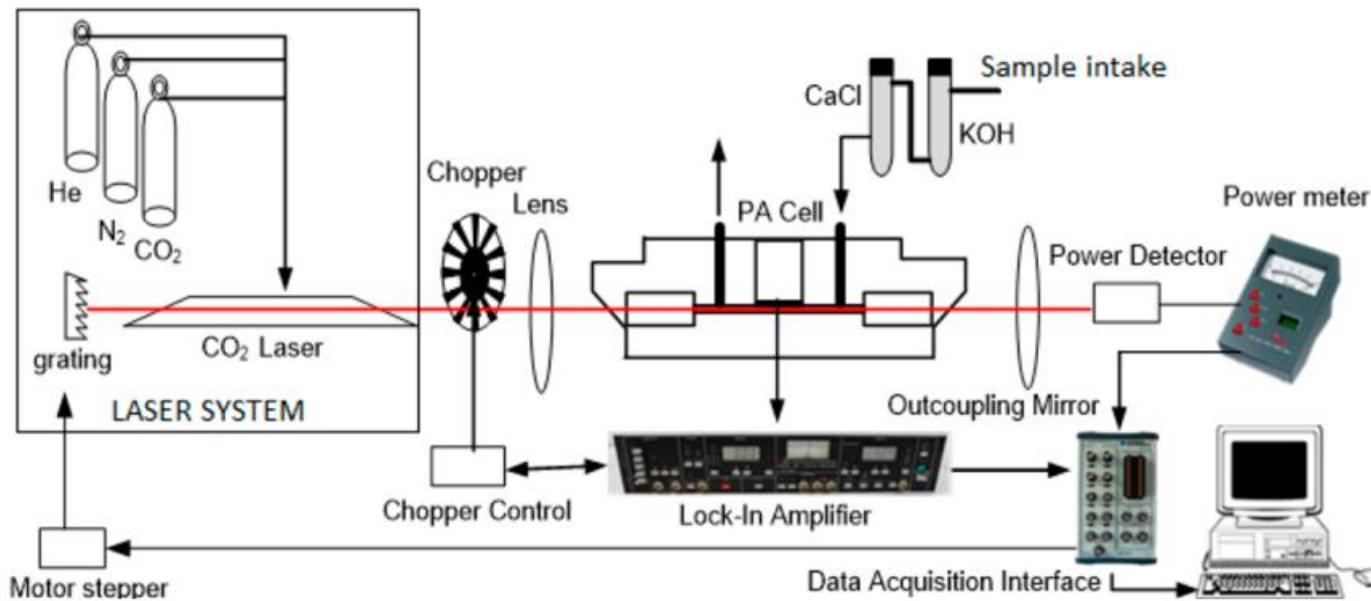
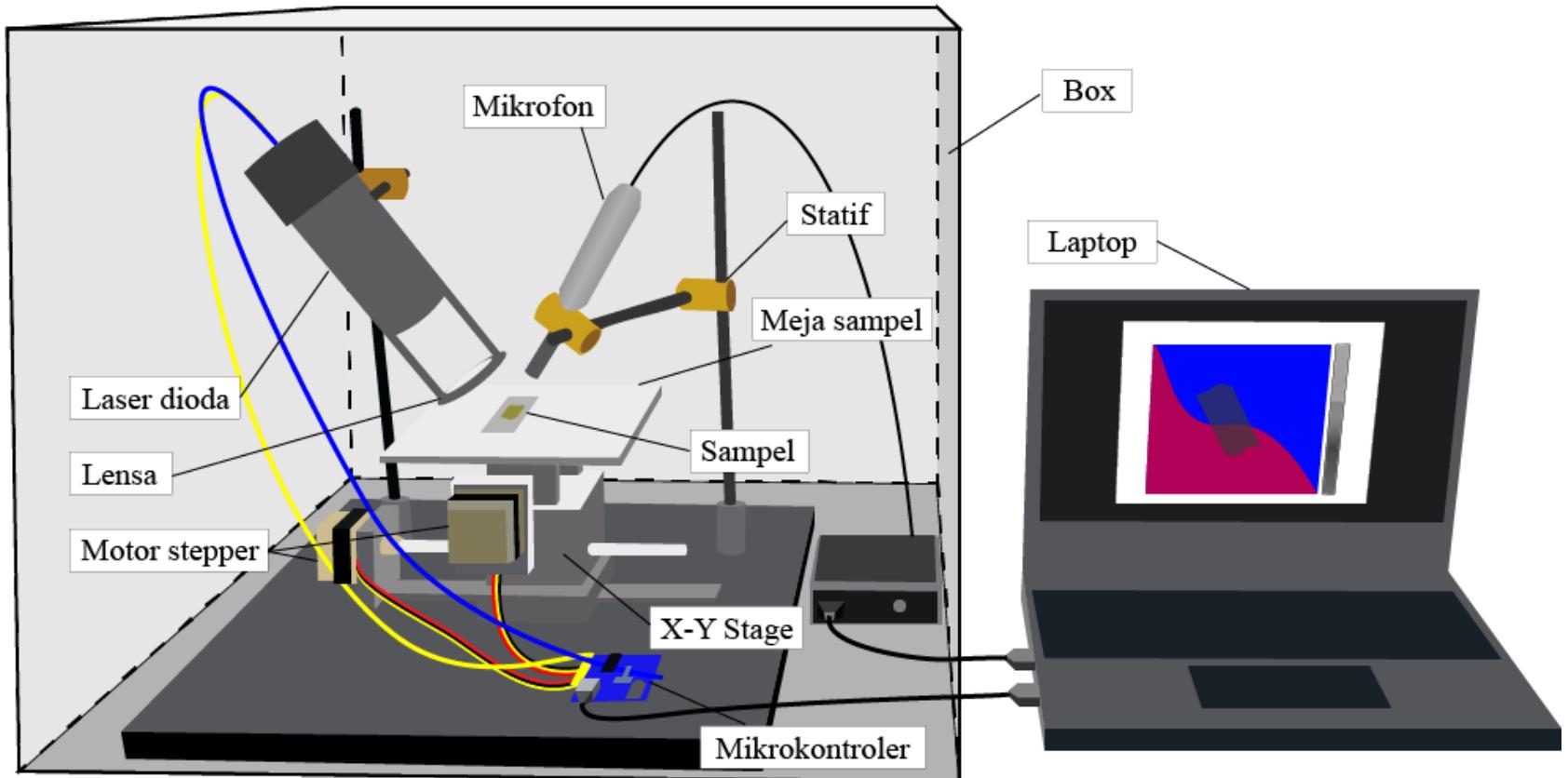


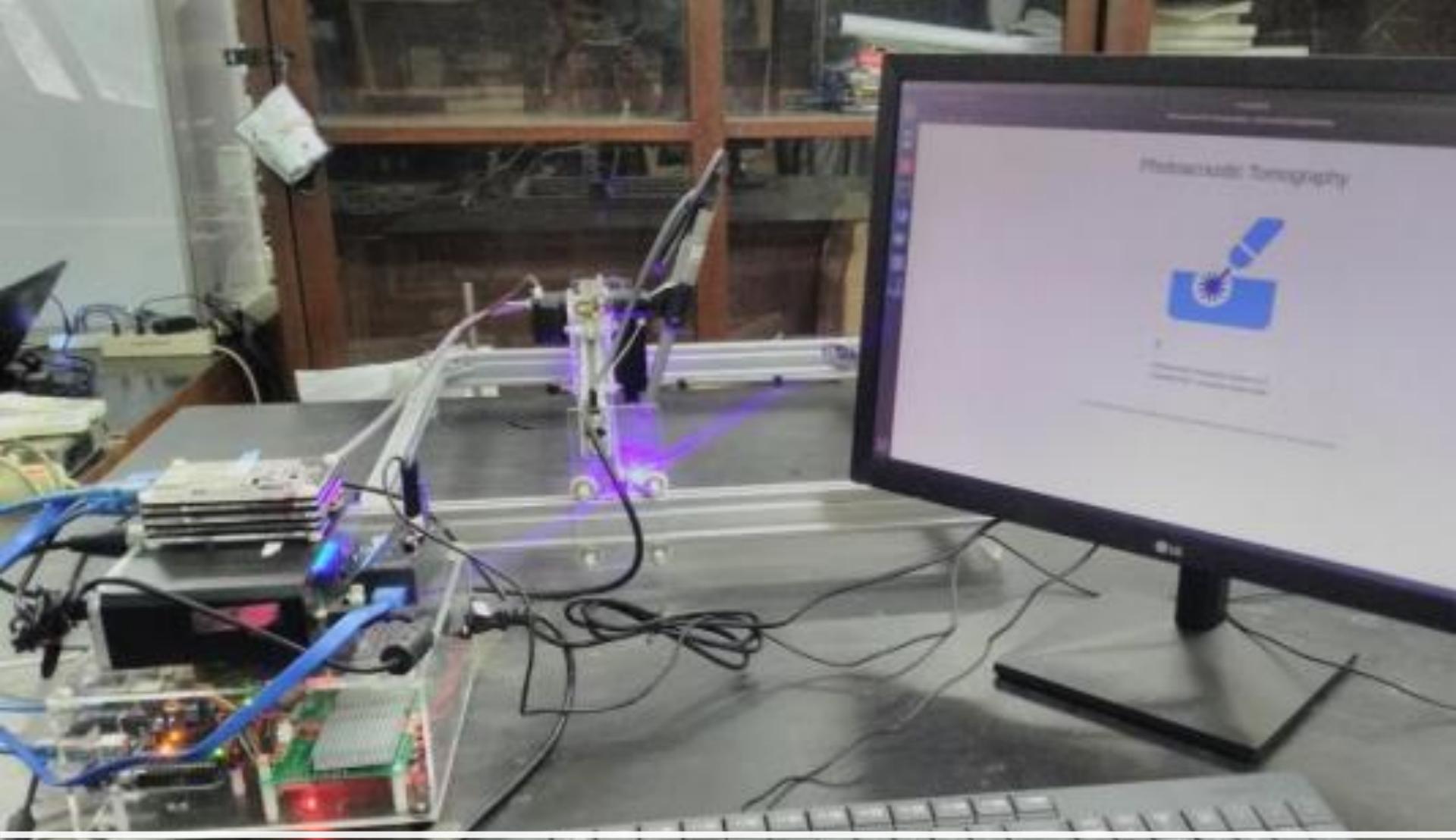
Figure 2. Principle of PAT signal generation, detection, and acquisition (A. Fatima, *et al.*, 2019)

# Schematic of CO<sub>2</sub> laser photoacoustic spectrometer (Mitrayana, *et al.*, 2020)

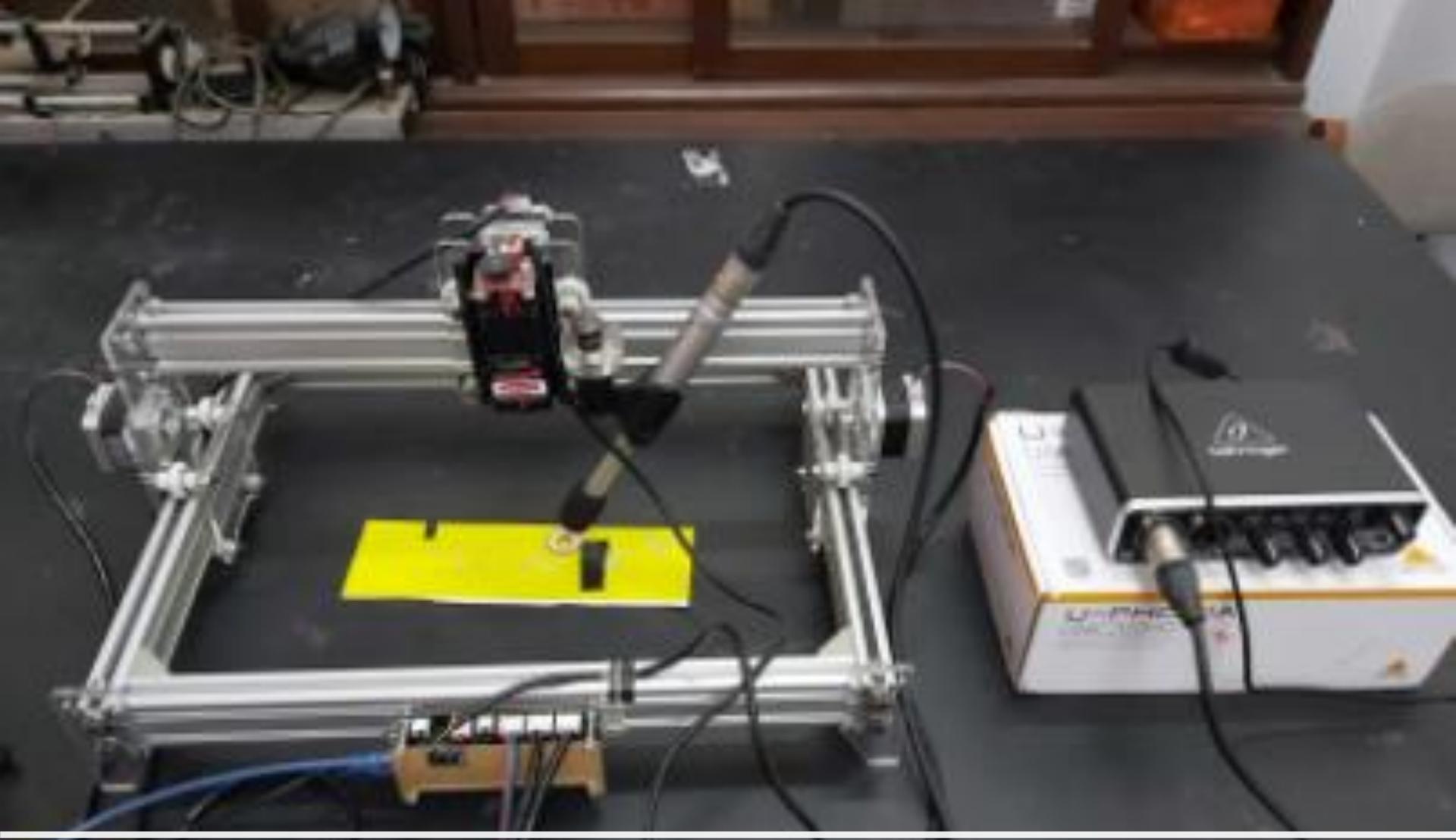


# Rangkaian sistem pencitraan fotoakustik 1

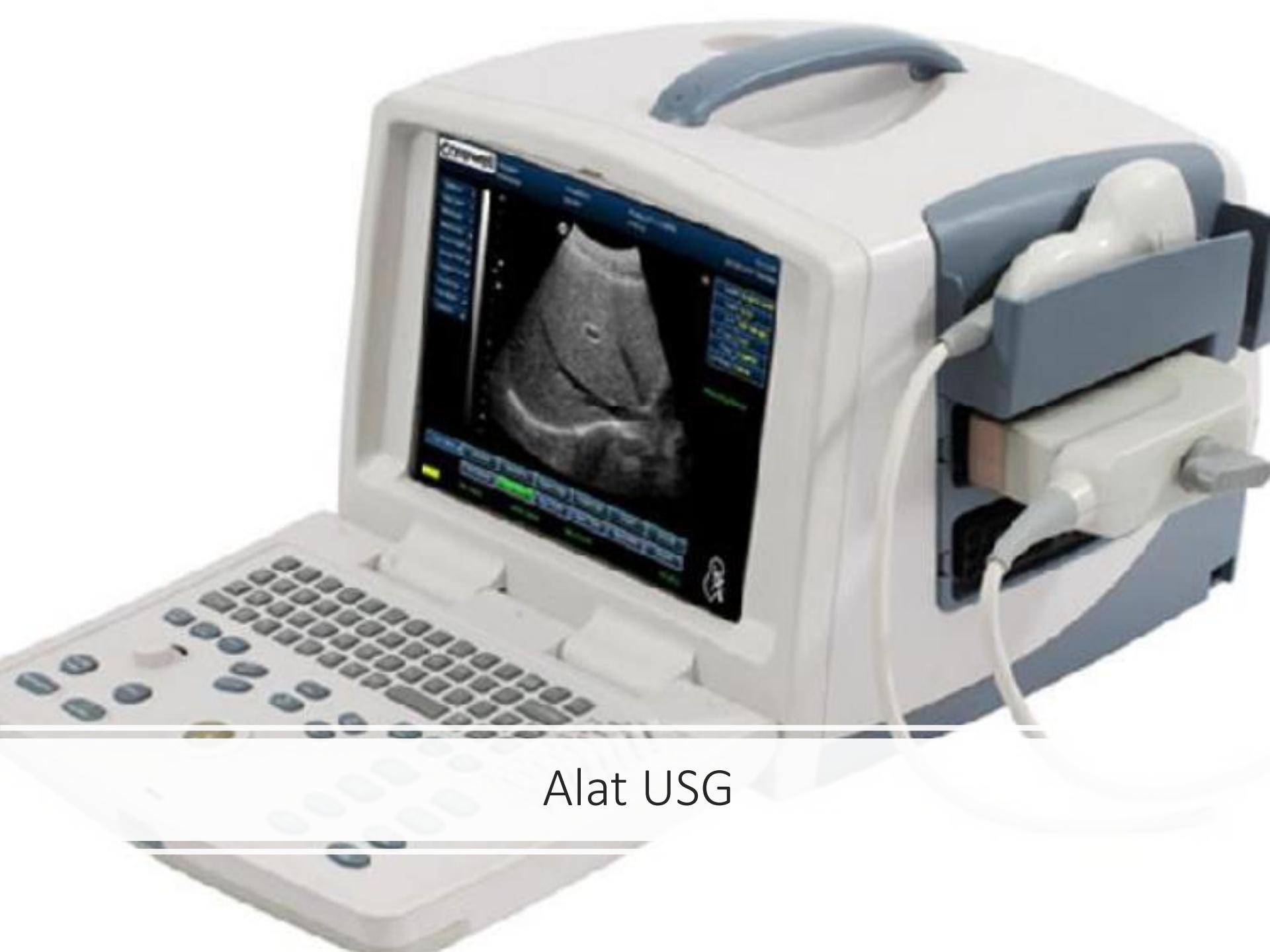




## Rangkaian sistem pencitraan fotoakustik 2

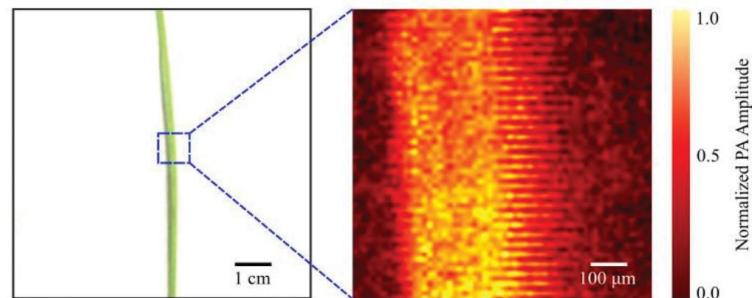
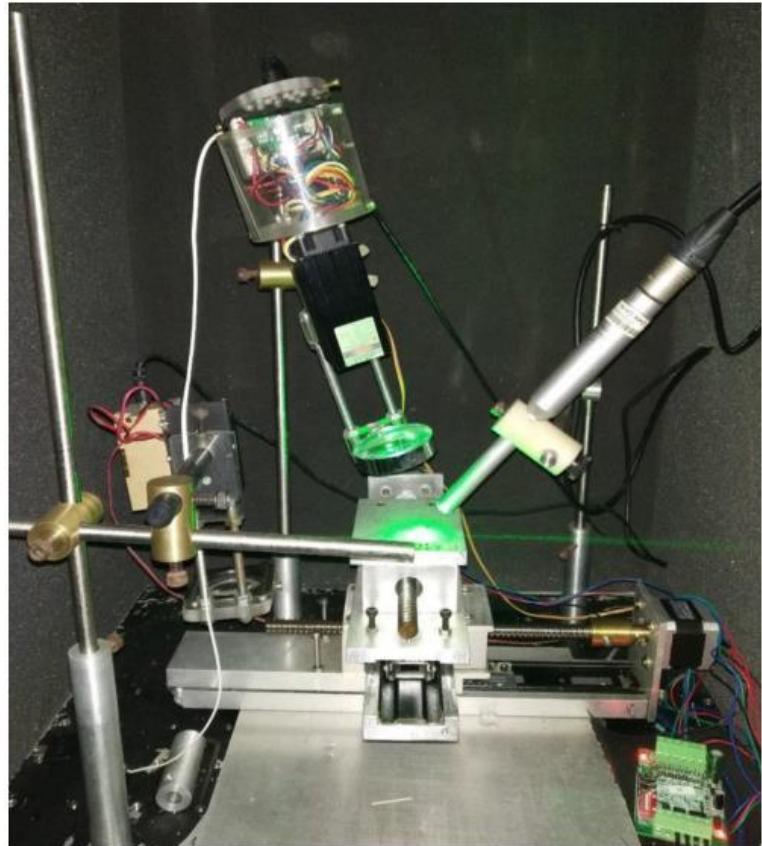


## Rangkaian sistem pencitraan fotoakustik 3

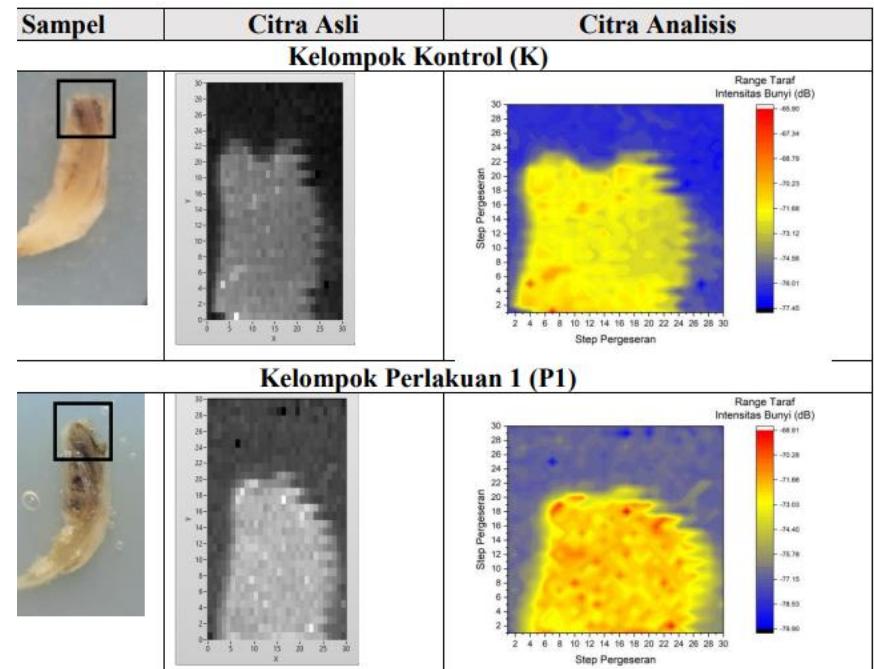
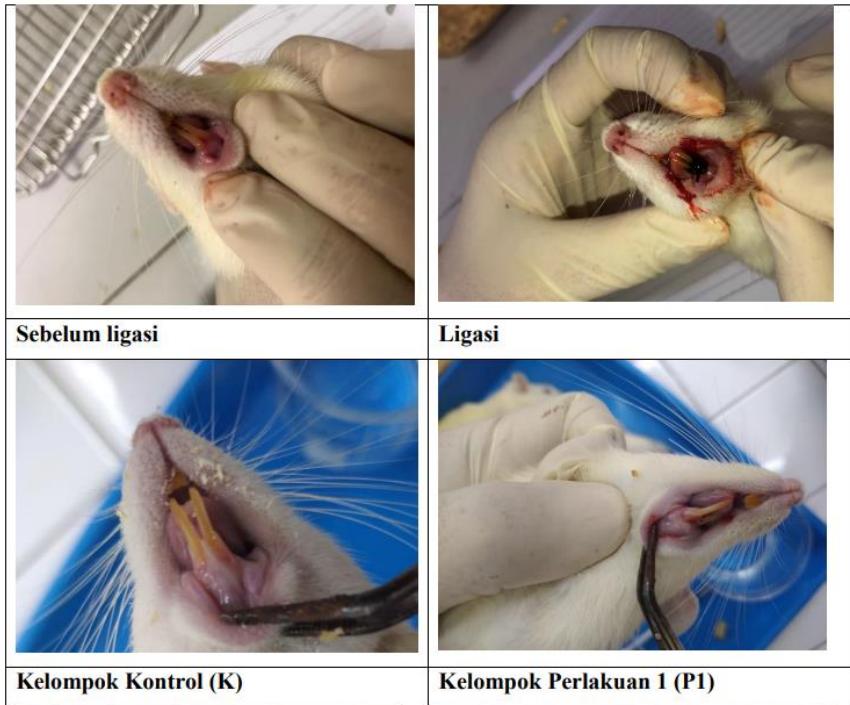


Alat USG

# Hasil Penelitian



# Hasil Citra Jaringan Periodontal





# Beberapa Publikasi Grup Riset Fotoakustik

J<sub>inst</sub>

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## Invisible barcode method base on NDT photoacoustic imaging

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**ABSTRACT:** The use of barcode technology has spread in many fields since it is cheaper and easier to use. To date, the barcode technology is applied by placing a code on a label surface. This

## Photoacoustic Imaging System based on Diode Laser and Condenser Microphone for Characterization of Dental Anatomy

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**Abstract**— The feasibility of a diode laser and condenser microphone-based photoacoustic imaging system for dental characterization has been investigated. The sample of this study was human teeth illuminated by a diode laser with a wavelength of 635 nm. The laser and detector were fixed in a static position while the sample was moved in the X-Y direction. A laser diode illuminates the sample at 17-20 kHz frequencies combined with 30%, 35%, 40%, 45%, 50%, and 55% of the duty cycles to investigate optimum laser irradiation for dental anatomy imaging. The acoustic intensity was measured ten times to investigate the characterization of the anatomical structure, *i.e.*, enamel, dentin, and pulp. The sample was then scanned using the system to determine the characteristics of the dental structure in the photoacoustic image. The results of this study reveal that the optimal frequency and duty cycle



Article

# CO<sub>2</sub> Laser Photoacoustic Spectrometer for Measuring Acetone in the Breath of Lung Cancer Patients

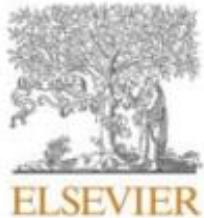
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# CO<sub>2</sub> laser photoacoustic spectrometer for measuring ethylene, acetone, and ammonia in the breath of patients with renal disease



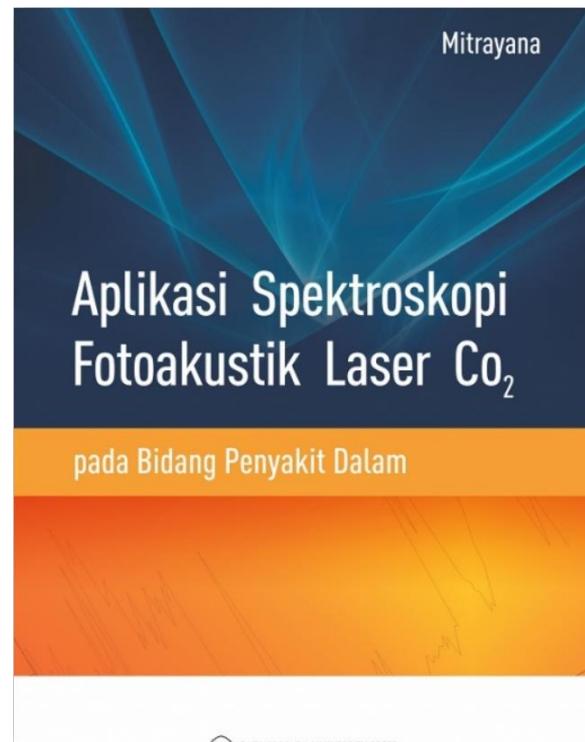
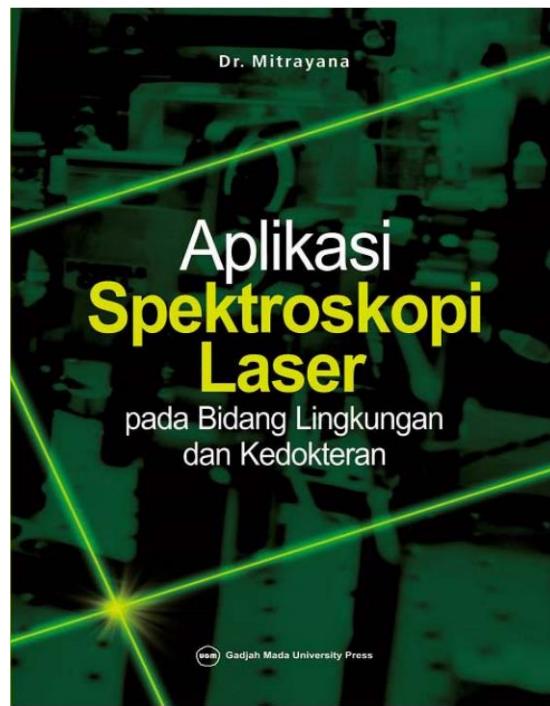
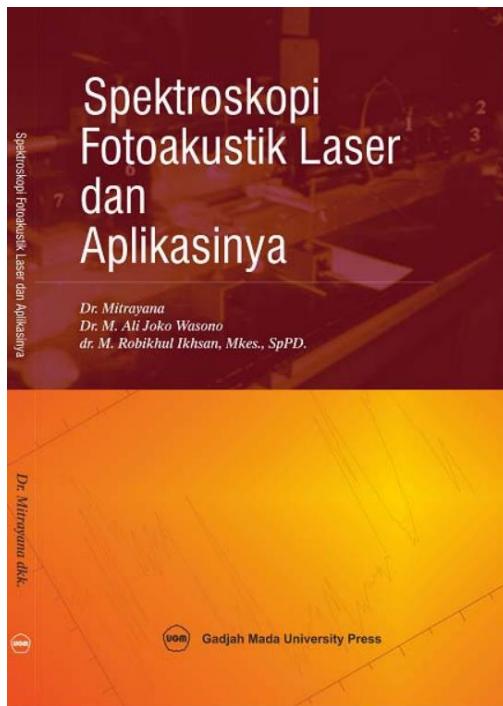
Mitrayana <sup>a,\*</sup>, Jeilen Gabriela Nikita <sup>b</sup>, Mohammad Ali Joko Wasono <sup>a</sup>, Mirza Satriawan <sup>a</sup>

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# S3 Aktif 2022



S3 PMDSU  
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## S2 Aktif 2022



# S1 Aktif 2022



# Terimakasih